

Vol. II

DEC 28 1921
INDEX NUMBER
DECEMBER, 1921

No. 6

Medical Lib.

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THE OBSTETRICAL SOCIETIES OF NEW YORK, PHILADELPHIA, BROOKLYN

Editor, GEORGE W. KOSMAK
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Published Monthly by
THE C. V. MOSBY COMPANY
ST. LOUIS

Foreign Depots:

HIRSHFELD Bros., Ltd., London, England.
STIRLING & COMPANY, Melbourne, Australia.
EMILE BOUGAULT, Paris, France.

EDWARD EVANS & SONS, Ltd., Shanghai, China.
McALISTER & COMPANY, Ltd., Toronto, Canada.
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The American Journal of Obstetrics and Gynecology

VOL. II.

ST. LOUIS, DECEMBER, 1921

NO. 6

Original Communications

VULVAL AND VAGINAL CANCER TREATED BY FILTERED AND UNFILTERED RADIUM EMANATION*

BY HAROLD BAILEY, M.D., AND HALSEY J. BAGG, PH.D., NEW YORK, N. Y.

THE treatment of cancer by radium emanation, enclosed in minute glass tubes and implanted directly into the growth without any further filtration, was first suggested by Duane in 1908. Joly and Stevenson (1914) used this method and reported a series of cases so treated. H. H. Janeway standardized this procedure, using it in many types of cancer in various parts of the body. He also first made use of buried emanation as a prophylactic agent, following the dissection of lymphatic structures at a distance from the lesion. In tongue and mouth cancer, after treating the original ulcer, his procedure was to dissect the lymph glands of the neck and then imbed a number of unfiltered radium tubes. In 1919, he reported a series of five cases of vulval carcinoma treated by the implantation of unfiltered tubes, reinforced by filtered radium, held by dental compound on the surface of the growth.

When this method was first employed, the tubes varied from 2 to 5 millieuries in strength, and in a number of instances there was considerable sloughing and irritation of the treated areas. Bagg, investigating the action of various doses of radium on living tissues, when implanted in this manner, found that the amount of tissue affected was not exponential to the size of the dose, and that as a matter of fact, with doses from 1 to 4 mc. there was but slight increase in this area when the dose

*Read at the Forty-sixth Annual Meeting of the American Gynecological Society, Swampscott, Mass., June 2-4, 1921.

NOTE: The Editor accepts no responsibility for the views and statements of authors as published in their "Original Communications."

The papers included in the Transactions of the American Gynecological Society are printed in the order of their presentation.

was increased by 100 per cent. However, the larger dose leads to a more intense necrosis in the tissue immediately adjoining the tube.

METHODS AND APPARATUS

1. *Filtered Radium.*—The filtered radium is applied according to the location of the lesion by one of three methods. These methods are described in detail in previous publications and they consist in the so-called "bomb," "block," and "dental compound" applicators.

In brief the "block" technic involves the use of 1000 to 2000 millicuries of radium emanation, filtered by either 2 mm. of brass or 2 mm. of lead, and $\frac{1}{2}$ mm. of silver, and held from the skin by 4 cm. of wood. In the first part of our work, lead was used as a filter and the dosage was 3000

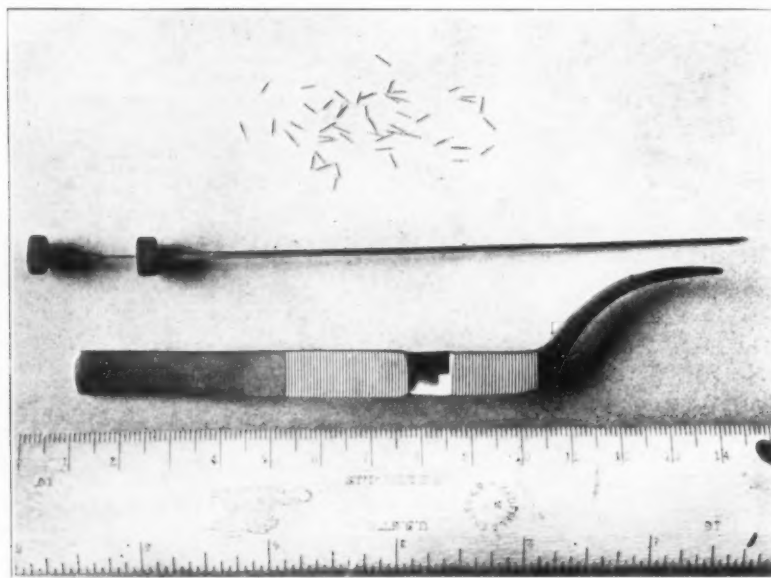


Fig. 1.—Bare tubes of radium emanation filtered only with 0.3 mm. of glass. Trocar and forceps; scale placed below shows the size of these instruments.

me. hrs. Following the research of our Physical Department, it was found that such heavy filtration was unnecessary, and an equivalent dosage was determined with a brass filter which has resulted in a material saving of the available radium. The "block" is applied for radiating the local lesion and both inguinal regions in vulvar cancer, and is used in six applications around the pelvic girdle in vaginal cancer.

In using filtered radium applicators for external lesions we follow the method devised by Dr. Janeway, which consists in using a 1 mm. platinum capsule held in position by dental compound. The dose is usually 350 me. hrs., the applicator being placed on the surface of the lesion. This method was also employed in treating lesions of the anterior vaginal wall.

The "bomb" was used only for the vaginal lesions. One thousand

millicuries of radium emanation, with a filter of 1 mm. of platinum, was used for one hour directly over the growth. This applicator is so constructed that side radiation is minimized, and the rectum and bladder are protected by a heavy filtration of lead.

2. *Unfiltered Radium.*—The unfiltered radium is inserted into malignant growths by means of long steel trocars. The small glass tubes consisting of radium emanations are placed at the pointed end of the instrument, which is then thrust into the tissue and the trocar is slightly withdrawn, as the tubes are deposited by exerting pressure on the stylet.

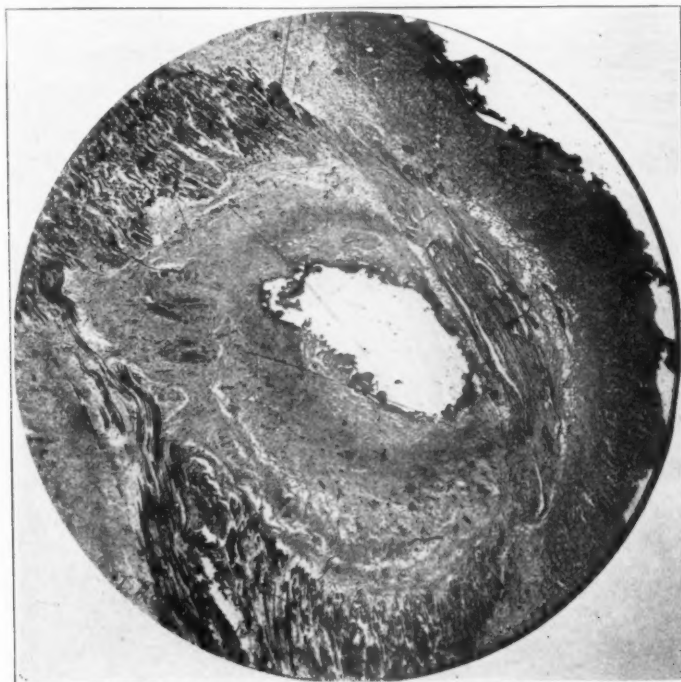


Fig. 2.—A bare tube containing 1.4 mc. of radium emanation was kept under the skin of a normal rat for 17 days. The open area in the center shows the location of the tube; around this area is a zone of complete necrosis and this in turn is surrounded by a zone of marked edema. The tissues show typical degeneration due to radiation. The area of destructive reaction is 1 cm. in diameter.

EXPERIMENTAL RESULTS FOLLOWING THE IMBEDDING OF UNFILTERED RADIUM

The histologic structure of the tissue about the radium tubes implanted in animals is shown in Figs. 2 and 3. Fig. 2 shows the tissue reaction from a small tube containing emanation and left under the skin of an animal for seventeen days. The central excavated area was in the immediate proximity of the tube, about this was an additional zone showing marked edema, some exudate, and less severe degeneration extending over a total area of 1 sq. cm. Fig. 3 was selected to show the marked leucocytic infiltration that is associated with the insertion of small doses of imbedded unfiltered emanation. The specimen was taken from

the edge of a lesion experimentally produced in the brain of a living animal. At the right of the illustration is shown a portion of the central area of necrosis, surrounded by a sharply demarked zone of polynuclear leucocytes beyond which there is a wide area of hyperemia, and some edema of the pia. The ganglion cells near the necrotic zone showed marked hydropic degeneration and all the nuclei stained poorly.

Figs. 4 and 5 show the reaction to imbedded radium in tumor in the human subject. Fig. 4 shows a myosarcoma of the vulva before treatment. Fig. 5 was from a specimen taken one week after imbedding of small doses of unfiltered radium. The histologic changes show typical

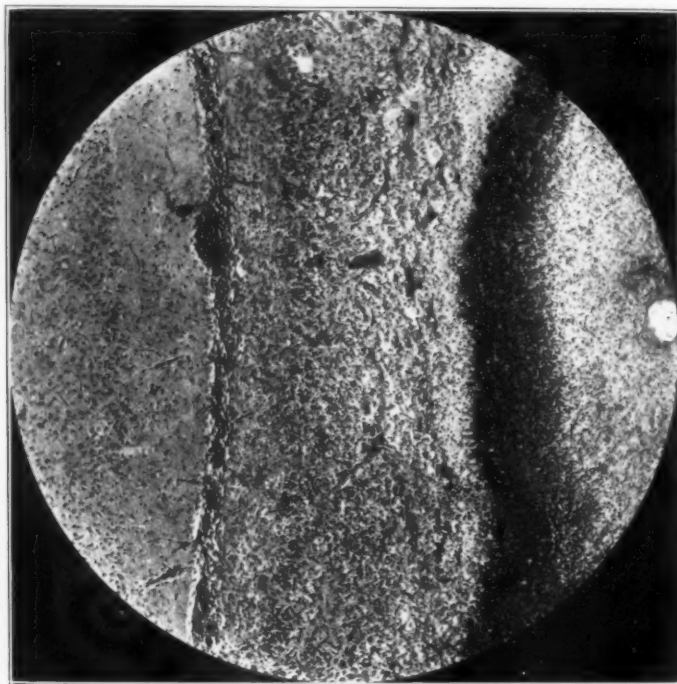


Fig. 3.—One and two-tenths mc. of emanation placed between the scalp and calvarium of a rat for 30 days. This is a highly magnified picture showing the periphery of the lesion produced in the brain. At the extreme right is an area of complete necrosis. The broad dark zone shows a dense leucocytic infiltration. In the middle of the photograph is a broad zone of hyperemia, sharply marked off from the area on the left where there is normal brain tissue.

radium effects. There is an increase in size of the cells with hyperchromatism and swelling of the nuclei and pronounced hydropic degeneration.

The localized reaction of the buried radium emanation is probably due to three reacting factors; first, the dispersion of the rays is increased the greater the distance from the source, so that the more distant gamma ray effect is comparatively slight and less sharply defined than the more intense beta ray reaction immediately surrounding the tube. Second, as shown by the recent work of Quimby, the beta rays are largely absorbed

by a few mm. of tissue; and third, the inflammatory reaction set up in the tissues in response to the radiation tends to localize the reaction. When strong tubes are used the area of tissue immediately surrounding the source of radiation is radiated for a longer time than is necessary to produce the death of the cells, and we believe that in most cases this is undesirable.

CANCER OF THE VULVA

There have been 10 cases where the labia were involved, the lesion varying from round flat growths, 2 cm. in diameter to larger masses

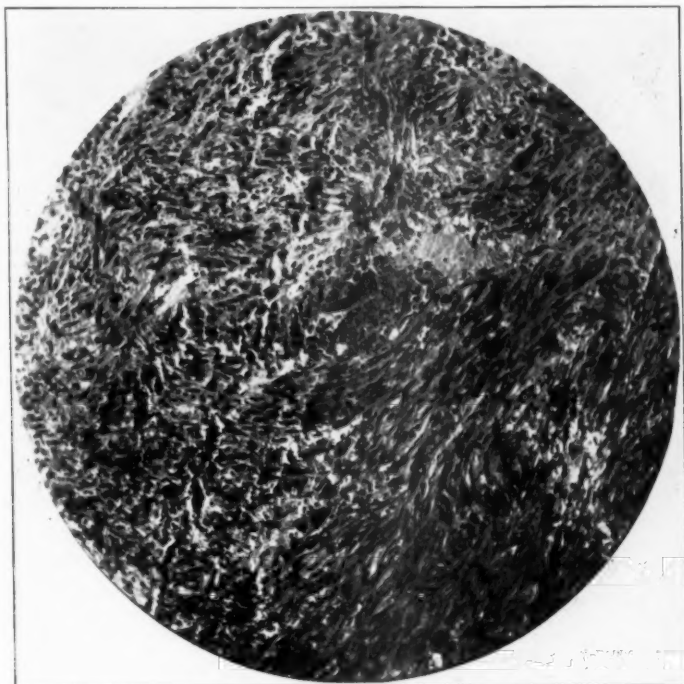


Fig. 4.—Sarcoma of the vulva. Cells showing mitosis and signs of active proliferation. Selected because in this case we were able to obtain a follow-up picture at the end of ten days.

1½ cm. thick and 7 cm. in the longest diameter. In most instances the lymph glands were affected. The pathological reports showed squamous cell carcinoma, with one exception, a myosarcoma. One of the cases developed a vulval tumor two years after she had appeared in the clinic for treatment for a recurrent cancer in the vaginal vault following a hysterectomy. Although only short periods have elapsed since the treatments, there are several of the cases that have shown marked improvement and this fact has encouraged us to continue this technic.

Outline of Treatment of Vulval Cancer.—1. Radiating the primary lesion with filtered radium. 2. Radiating the groin on both sides with filtered radium. 3. Imbedding unfiltered tubes of 0.5 millicuries each,

in the primary growth, placed $\frac{3}{4}$ of a centimeter apart. 4. Dissection of the groin, when necessary, with further radiation by means of buried emanation.

In our first enthusiasm with the method of imbedding many bare tubes of weak strength, we saw such regular and prompt retrogression of the ulcer that it seemed unnecessary to treat the lesion further. However, the marked and early involvement of the glands caused us to turn again to the primary ulcer. This was then treated with filtered radium, but recently the procedure has been reversed and the filtered radium is used first to avoid the possibility of spreading the disease by trauma at the time of the implantation of the tubes.

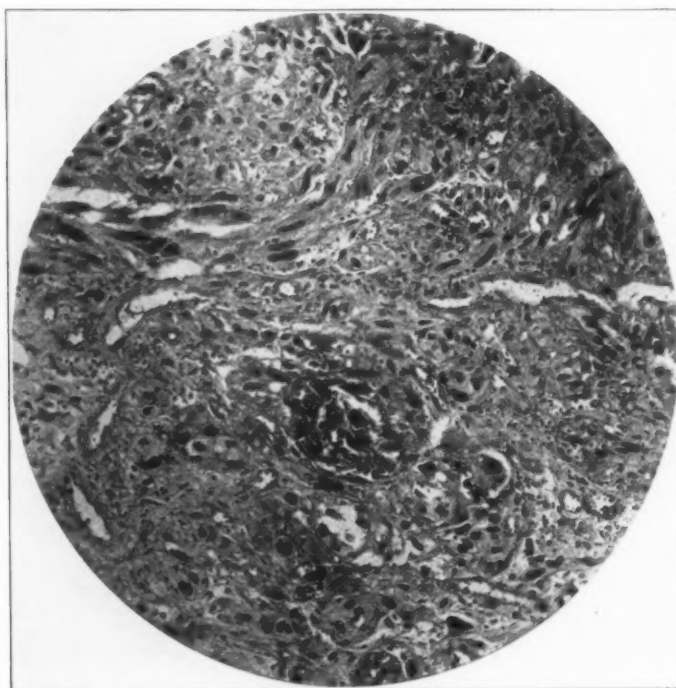


Fig. 5.—Same tumor as Fig. 4 but following radiation. Enlargement and pyknosis of the nuclei, loss of mitotic figures, vacuolation and leucocytic infiltration.

Treatment of the Ulcer.—In inserting the glass tubes, of approximately 0.5 millicuries value, the tumor is theoretically marked off into square centimeters, and 1 tube is placed in each area. In larger lesions, 5 to 7 cm. in diameter, it is well to implant the tubes along the edge of the growth at about $\frac{3}{4}$ of a centimeter distance, and leaving the needles in place, implant the remainder in parallel lines from the edges. The needle carrier is inserted as near as possible to the base of the ulcer; and before the radium is discharged, it is withdrawn slightly as the stylet deposits the bare tube.

All the cases should be seen after three weeks, and then it will be

evident what areas, if any, have been untreated or ineffectively radiated. We find that a second treatment is usually necessary.

Treatment of the Lymph Nodes.—Although external radiation is usually considered as but feebly affecting glandular metastasis, we have relied upon it to the extent of first treating the groins with a dose of 3000 mc. hrs., at a distance of 4 cm., with the lead "block" or with 2000 mc. hrs. with the brass "block." After a period of six weeks, or two months, if there is palpable involvement, the glandular areas are dissected on one or both sides. If the lesion is in the upper part of the vulva, the glands of both sides may be involved.



Fig. 6.—Carcinoma of the vulva. The tumor mass is divided into square centimeters and a tube is inserted into each.

We have been satisfied with simple dissection of the inguinal chain with sometimes an additional incision over the femoral area. On removal of the glands, unfiltered tubes of 0.3 to 0.5 mc. each are laid 1 cm. apart, and if possible, also into the stump of the lymphatic chain. Bare tubes* have been laid in glandular masses entering the femoral ring, and also in glands above Poupart's ligament. If the radium is not laid directly against the vessel, or into its lumen, tubes of 0.3 mc. apparently do not lead to erosion. There have been no secondary hemorrhages in

*Bare tubes refer to radium emanation filtered by only 0.3 mm. of glass.

this location and none within two months of such insertion directly through the vaginal vault. We have had but two primary hemorrhages in the pelvis from direct injury by the needle during the insertion, but these have fortunately been readily controlled.

Where the glandular metastasis has extended into the pelvis rather than to do such a radical dissection as in Basset's operation, we have relied upon the surface application of filtered radium for palliative purposes. There have been some cases that have required a second dissection of this region. As in surgery, the primary lesion is easily taken care of, but the lymph glands bring final disaster in many of the cases.

Of the six cases of this group that are still living the following are selected for purposes of showing the actual experiences with the technic.

1. *Vulval carcinoma, with lymph gland involvement, resulting in a complete retrogression of the original ulcer, and with the glandular areas held in check.* No. 27088. Age thirty-nine. Microscopic examination of specimen showed epidermoid carcinoma. Hysterectomy in October, 1918. Vulval lesion noted the following June. Examination: Lesion of the vulva extending from the urethra two-thirds of the way to the fourchette. The inguinal glands on the left side are enlarged. Treatment: December 1, 1919, the lead block at 4 cm. distance for 2998 mc. hrs. Two days later, 7 bare tubes of 1 mc. each were imbedded in the vulval growth, giving a dose of 924 mc. hrs. February 24, 1920, 817 mc. hrs. were applied to the lesion by means of a 1 mm. platinum tube held in dental compound. One month later, the left groin was dissected and enlarged glands removed. Bare tubes of 0.5 mc. each were distributed throughout the wound, giving a total dosage of 462 mc. hrs. June 14, 1920, the right groin received a dosage of 2946 mc. hrs. by means of the lead block. December 29, 1920, there was no evidence of disease in the vulva and the glands showed no recurrence. May, 1921, the vulva showed no signs of cancer. There is a thick ridge of tissue in the groin.*

2. *Early primary cancer of the vulva, without palpable glandular involvement.* No. 27979. Age seventy-two. Microscopic examination showed squamous carcinoma. Growth preceded by itching of labia for a number of months. One year ago, a pea-sized lesion was noted in the vulva. Examination: There is a growth in the left labia minora, 2 by 3 cm. Irregular, hard, and with induration extending to the vaginal orifice. There is no palpable glandular involvement. Treatment: August 10, 1920, 26 bare tubes, totaling 5.7 mc. were imbedded in the lesion, giving a dosage of 752 mc. hrs. This treatment was repeated with a dose of 887 mc. hrs. on November 1, 1920. Five days later, the groins were treated with a dose of 2599 mc. hrs. by means of the lead block. At present, there is a small area of cancer tissue at the site of the primary lesion.

3. *Primary cancer of the urethra, with glandular involvement and with a retrogression in both areas, followed by late recurrence at the original site of the lesion.* No. 27016. Age thirty-one. Microscopic examination showed epidermoid carcinoma. A growth was noted four months before admission to the hospital. The lesion was not painful, but bled easily. Examination: The entire urethra on its lower walls is infiltrated by an ulcerating growth. The mouth of the urethra is split open and forms an ulcer of 1 cm. in diameter. There is glandular involvement of both groins. Treatment: November 10, 1919, both inguinal regions were treated with 2913 mc. hrs. by the lead block. The following week, 8 bare tubes of 0.6 mc. each, giving

*At the time of reading this proof (November, 1921), six months after the paper was written, we found a recurrence in the right parametrium.

a total of 1056 mc. hrs., were placed in the local lesion. On January 5, 1920, 8 tubes were again imbedded in the lesion for a total of 243 mc. hrs. The tubes were 0.2 mc. each. May 10, 1920, two bare tubes, of 0.4 mc. strength, were placed in hard nodules beneath the urethra. On August 23, 1920, 10 tubes, of a total strength of 2.0 mc., and 2 of a total of 0.9 mc., were placed in the lesion around the external urethral meatus. At the same time 7 tubes of a total of 3.0 mc. were placed in the right groin after dissection, giving a total dose of 397 mc. hrs., and 6 tubes of a total of 2.6 mc. strength (340 mc. hrs.) were imbedded in the groin on the left side. Microscopic examination of the lymph nodes showed epidermoid carcinoma. In May, 1921, there was a recurrence of the tumor at the original site. Twenty bare tubes, averaging 0.45 mc. in strength, were placed in the lesion. the dose was 1212 mc. hrs. At the same time, a dose of 376 mc. hrs., in a 1 mm. platinum capsule, was held on the surface of the lesion by dental compound. At present there is a radium slough over the radiated area.

In this case, we depended entirely upon the use of unfiltered radium in the treatment of the primary lesion. We now feel that in all cases the ulcers should be first radiated by filtered radium with a sufficient dose to affect outlying areas beyond the reach of the bare tubes implanted in the ulcer. The second point to be gained from the history of this case is the necessity of frequent observation even though the patient may seem to be cured.

CANCER OF THE VAGINA

Outline of Treatment.—1. Imbedding of unfiltered tubes of 0.5 mc. each, in the primary growth and placed about $\frac{3}{4}$ of a centimeter apart.

2. Filtered radium in the "bomb" applicator directed toward the growth.

3. Six external applications of filtered radium by means of the "block," reinforcing the radiation in the parametrium.

The two following cases are selected as typical of the lesions occurring in this location.

1. *Primary carcinoma of the vagina with no parametrial involvement, showing complete retrogression.* No. 26990. Age fifty-two. Specimen showed papillary epidermoid carcinoma. Examination: There is an annular growth, 3 cm. in diameter, on the posterior wall of the vagina, with the limits sharply defined.

Treatment: October 29, 1919, 6 bare tubes with a total dosage of 6.6 mc. and a value of 814 mc. hrs., were implanted in the tumor. One month later this was reinforced by 1040 mc. hrs. by means of the "bomb" applicator. February 11, 1921, there was a slight thickening in the posterior vaginal wall. May, 1921, there is no evidence of disease, and the vaginal wall is elastic.

2. *Primary cancer of the vagina, with parametrial involvement, and complete retrogression.* No. 27245. Age forty-one. Specimen showed squamous carcinoma. Examination revealed a primary growth on the posterior vaginal wall, 4 by 5 by 1 cm. in diameter, extending to the vault, but not involving the cervix. The rectal wall was free, but the right parametrium was thickened.

Treatment: January 16, 1920, 17 bare tubes, of a total of 5.9 mc., and a value of 779 mc. hrs., were imbedded in the growth. An external treatment over six places about the pelvic girdle, with a dosage of 2850 mc. hrs., was given by the lead block. Three days later, 1050 mc. hrs. were given by the "bomb" method, with the

apparatus directed toward the lesion. Examination shows a slight bridge of tissue crossing beneath the mucous membrane. There was no evidence of cancer.

There were 18 cases treated by this method, and of these, 5 are alive and 4 are apparently free of the disease, although only short periods of time (the longest is 2 years) have elapsed since the treatment. All the growths were primary with two exceptions. These had recurrences in the lower, or first portion of the vagina, following hysterectomy for cancer of the uterus.

If the growth is localized on the posterior wall, a finger in the rectum aids in fixing the indurated area and facilitates the placing of the tubes. If the growth is on the anterior wall, one or two needles are inserted into the center of the growth, about $\frac{3}{4}$ cm. apart, and after discharging the emanation tubes, they are left in the growth and the shank of the needle is grasped, thus holding the entire area in position, while the remainder of the tubes are inserted. In the lower third of the vagina, the bare tubes are reinforced by means of radium in platinum tubes, held in place by dental compound. In the upper and middle thirds, the filtered radium is given by means of the "bomb."

With but one exception, there have been no glandular enlargements of the inguinal region in the cases where only the vagina was involved by the primary growth. All the lesions were of the ulcerative type and were accompanied by underlying induration, which in a few cases extended into the parametrium and could be readily palpated through the rectum.

DISCUSSION OF RESULTS

Until Janeway had instituted the use of imbedded emanation in vulval cancer, the general opinion of gynecologists was that radium had no place in this field, and even recently we have seen a statement to this effect. From a study of the subject extending now for more than three years we must disagree with this opinion, for we know that the original lesion may be completely eliminated without loss of any considerable amount of normal tissue and with comparatively little pain.

We believe that the method outlined is an ideal one for destroying the primary lesion. There is a minimum opportunity for spreading the disease, especially if the insertion of the tubes is preceded by an application of heavily filtered radium, which tends to devitalize the tumor cells. Wherever possible, the radium tubes surrounding the lesion are inserted through normal tissue. It might seem at first thought that the cautery could accomplish as much and in a shorter time. It must be remembered, however, that the two reactions are dissimilar. The imbedded radium produces a prolonged, gradual, reactive inflammation which is effective in checking the extension of the disease.

The experience with various doses of imbedded unfiltered radium emanation has shown that if the tubes are of 5 mc. strength, the elimination

of the tumor is associated with extensive sloughing and prolonged and serious discomfort; whereas the smaller dose of about 0.5 mc., accomplishes as much for the removal of the growth, and yet without sloughing and with little pain. Except in the most minute lesion, it is not possible to arrange the placing of the tubes so that all the cancer cells are effectively radiated. Filtered radium to further check the growth of the injured, or partly damaged cells, is necessary as an adjunct to the implantation of bare tubes in vulval and vaginal cancers.

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MEMORIAL HOSPITAL.

(For discussion see page 649.)

TORSION OF THE CECUM WITH REVIEW OF THE LITERATURE AND REPORT OF A CASE*

BY SIDNEY A. CHALFANT, PITTSBURGH, PA.

AN abnormal mobility of the cecum and ascending colon is a prerequisite to the development of a volvulus in that part of the intestinal canal. This abnormal mobility has been thoroughly studied by Harvey,¹ who reports his findings in 105 autopsies in infants between birth and two years of age, and gives a most thorough review of the literature. He found an abnormal mobility of the cecum and lower two-thirds of the ascending colon in 13.3 per cent of his cases. This seems to be a rather low percentage as the same writer quotes others ranging from 14 per cent (Piersol²) to 26 per cent (Treves³) and 31 per cent (Smith⁴). This abnormal mobility of the large intestine including also the descending colon is normal in the pronograde animals as pointed out by Morley,⁵ who states, "that the fixation of the colon progresses, *pari passu*, with the adoption of the erect posture, until in an orthograde animal such as the chimpanzee, the fixation differs in no material degree from that in the normal human type."

The fusion of the peritoneal surface occurs in the later months of intrauterine life or in the first few months after birth. Connell⁶ suggests that the failure of fusion may be due to a late rotation of the first part of the large intestine in which coils of the ileum prevented the apposition of the surfaces that usually fuse.

While a marked mobility is present in about 20 per cent of persons of all ages, in only 1 per cent, according to Wandel,⁷ does this extend up to or beyond the hepatic flexure.

*Read at the Forty-sixth Annual Meeting of the American Gynecological Society, Swampscott, Mass., June 2-4, 1921.

Bundschuh in 1913⁸ reviewed the literature and found 110 cases including one of his own. Kohler⁹ reported an additional case, Corner and Sargent¹⁰ five, Satterlee¹¹ one and Morley¹² one, making a total of 118 and with ours, 119 cases that we have been able to find to date. Of these 119 cases, 23 were not operated upon and all died; of the 96 cases operated upon, 57, or 59 per cent, died, giving a total mortality of 80 out of 119, or 67 per cent.

Torsion may occur in one or two ways; first rotation on an intestinal axis in which the cecum is carried across the abdomen and lies in the splenic area, kinking the colon at the hepatic flexure; or second, rotation on a mesenterial axis in which the cecum, ascending colon, and more or less of the terminal ileum are rotated at the hepatic flexure. This was the nature of the torsion present in our case.

The symptoms of torsion of the cecum are apparently less violent than those of torsion of the sigmoid. They depend upon several factors, especially the amount of small intestine involved, the degree of the torsion, and the lapse of time before operation. In those in which the entire small intestine is involved, occurring usually in infants, the symptoms are severe abdominal pain, general meteorism, and collapse. Death occurs in from six to twelve hours from shock and hemorrhage into the paralyzed bowel, commonly without a diagnosis having been made.

In the more chronic cases there is, as a rule, a history of attacks of sudden pain in the upper abdomen, vomiting and constipation. These attacks occur more or less frequently over a period of years. The symptoms appear to be due to a partial torsion that corrects itself spontaneously. Finally, a more complete torsion takes place which, if not operated upon, is fatal.

In the early cases without damage to the intestine, simple detorsion, with fixation of the cecum and ascending colon to prevent a recurrence, is sufficient. In the later cases the same principles apply as in intestinal obstruction in general, relief of the obstruction, care for the damaged intestine and drainage of the bowel above the point of obstruction.

CASE REPORT

Mrs. M. W., age forty-nine, was seen August 3, 1919. Family history negative, except that her mother has carcinoma of the bladder at the present time. Patient had the usual diseases of childhood. There has been for many years a marked constipation, but no history of attacks of pain. Fifteen years ago she was operated upon by Dr. F. F. Simpson and the left side of a double uterus with the corresponding tube and ovary was removed. Her convalescence was normal. Puberty at thirteen; periods irregular until twenty-four years of age; since then they have been regular, of the 28-day type, lasting four to five days. Eighteen months ago she had a profuse and prolonged menstrual flow which amounted to quite a severe menorrhagia. Since then she has been bleeding irregularly and at times profusely. There has been no marked loss in weight and no bleeding from the bowel.

The patient's present illness began one week ago when, after eating a heavy meal, she had an attack of severe pain in the upper abdomen. This pain recurred

frequently and for the past four days has been almost constant, but of varying severity, and has been confined to the epigastrium and right hypochondrium. For the first three days the bowels moved with the aid of laxatives and enemata, but for four days she has passed no fecal matter or gas. Four days ago she vomited for the first time and has vomited three times since, but never at any time anything suggesting fecal matter.

Examination showed heart and lungs negative. Pulse 80, and temperature 99.8° F. Abdomen markedly distended and peristalsis visible. There was no rigidity, but marked tenderness in the epigastrium and right hypochondrium. There was no evidence of hernia.

Vaginal examination showed the uterus enlarged to about twice its normal size and adherent to the right pelvic wall. There was some bleeding on examination. Nothing further could be determined on account of the distention of the abdomen.

This was thought to be a case of intestinal obstruction of a subacute type, low in the intestinal canal on account of the moderate symptoms, and vomiting coming on rather late in the course of the disease. As the history of uterine bleeding for eighteen months and the presence of a large adherent uterus suggested strongly a late carcinoma of the fundus, it was considered that the obstruction was probably due to an adhesion of the rectum or lower sigmoid to the uterus, kinking it, or possibly to an extension of the growth to the intestinal wall constricting the lumen. An obstruction due to a band of adhesion following her former operation was also thought to be a possible diagnosis.

The patient was sent to the hospital for immediate operation. On account of the apparent nature of the obstruction and the length of time since the onset of the trouble, a high left colostomy was decided upon. On opening the abdomen just above the left anterior superior spine of the ilium the descending colon was found collapsed. Through this incision a greatly distended loop, apparently of the large bowel, could be felt on the right side, extending to or a little beyond the midline. A right rectus incision was then made and this distended loop of intestine, which proved to be the cecum, ascending colon and about eighteen inches of the terminal ileum was delivered. The obstruction was just below the hepatic flexure and was due to a rotation of 360° from right to left, of the large bowel with the involvement of about eighteen inches of the terminal ileum, and was complicated by a firm band of omentum which surrounded the intestine at the point of constriction. The omentum was divided and the torsion corrected. The pressure within the cecum was so great that the peritoneal coat along the longitudinal bands separated when the cecum was delivered from the abdomen. The pressure at once was greatly reduced and the color returned to the intestinal wall. After repairing the peritoneal coat of the cecum, the intestines were replaced and the abdomen closed hurriedly without drainage. No attempt was made to fix the cecum. Convalescence was complicated by an infection in the rectus incision and an attack of digestive disturbance at the end of two weeks, associated with pain in the upper abdomen, diarrhea, and slight elevation of temperature.

Since leaving the hospital the patient had several attacks of pain in the upper abdomen resembling, according to her family physician, gallstone colic. There was no uterine bleeding until two months ago. For three weeks it was quite profuse, and the patient was readmitted to the hospital. She had a moderate elevation of temperature and pain in the lower abdomen. After the temperature subsided we attempted to do a diagnostic curettage, but on dilating the cervix about three or four ounces of pus escaped. She has just recently been discharged in good condition.

This case is reported in order to point out the fact that torsion of the cecum, while a rare condition, does occur, and that it must be considered

in making a diagnosis in obscure cases of intestinal obstruction. This is especially the case in patients presenting a history of obstinate constipation with previous attacks of severe pain in the upper abdomen.

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7048 JENKINS ARCADE BUILDING.

(For discussion see page 649.)

ENDOCERVICITIS AND EVERSION AND THE NASAL CAUTERY TIP*

BY ROBERT L. DICKINSON, M.D., NEW YORK, N. Y.

THE present evidence of discontent with some of the end-results of our cervix surgery calls for a more careful adaptation of the particular operative measure to the particular cervix. It calls also for a consideration of the injuries and inflammations that can be rendered harmless and symptomless by treatment outside the operating room, and particularly for a reappraisal of measures other than operative.

One such measure is too little employed,—the delicate cautery used in the nose. It has a not inconsiderable field between the simple raw areas and catarrhs that respond to a couple of applications, and the major injuries that need hospital work. Even among the latter there are some cases so benefited by preliminary treatment that their surgery is simplified. In a number of instances where the patient has been obliged to postpone operation for a major condition of the cervix, and this palliative treatment was used to relieve symptoms, I found operation in the end unneeded because the healing was enduring and the inroll sufficient. Furthermore, any measure that will abbreviate office treatment and obviate the pelvic obsession of the chronic office habitué is to be welcomed.

As technic, this method is not to be classed with the clumsy Paquelin hospital operation of Hunner except in its effectiveness in proper cases. Therein it is all that Hunner claims.

The cases responding particularly to this treatment happen to be especially rebellious to others. The worse they are, the more they are adapted to the hot wire. These are:

*Read at the Forty-sixth Annual Meeting of the American Gynecological Society, Swampscott, Mass., June 2-4, 1921.

1. Rough and extensive granulation, with eversion.
2. The cysts, superficial or deep (these recur sometimes after repairs).
3. Voluminous, adhesive mucous catarrh of the canal.
4. Gonorrheal free secretions, with thickened lining.
5. Between-birth erosion with laceration (recurring with each labor if sewed in the interim).
6. Patients whose physical condition precludes, or whose circumstances postpone, operation.
7. Marked endocervicitis in virgins (because the visits are few).

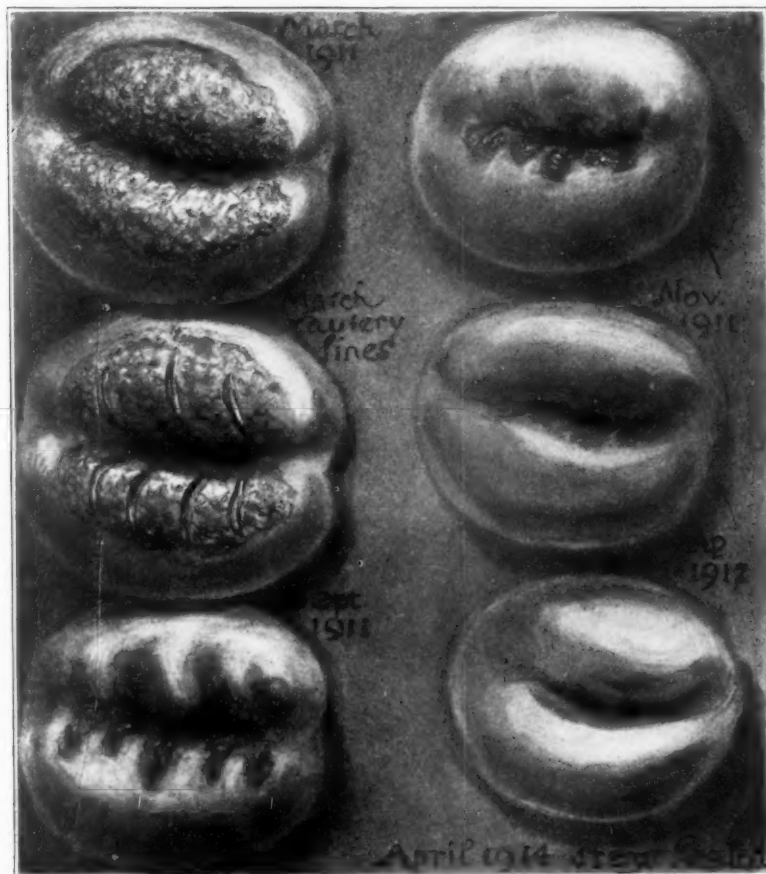


Fig. 1.—Laceration with eversion and granular surface, life-size. Cautery lines at first treatment. Absent for six months—demonstrating possibilities from single application. November shows effect of second treatment. A third in April gave the permanent healing, and shrinkage and inroll seen in lower drawing, so that operation was not required.

There are groups that belong to other methods, such as: those responding promptly to simpler measures, or very sensitive; catarrh with pinhole external os, that calls for dilation; chronic infiltration about the internal os, requiring the dilator; edema, and edema simulating hypertrophy, that need depletion; congestions due to constipation and sex-

function disturbance; and endocervicitis that is an expression of a general condition.

The type of outfit is of some importance. The finer the electrode, the better. The generator with the vicious spitting noise alarms patients. The hum of the ordinary motor is feared. It may and should be obliterated by hanging the motor in another room, or a closet, or, better, in the cellar.



Fig. 2.—Chronic endocervicitis of intact virgin, with hypertrophy and eversion and granular surfaces. Shrunken and inrolled by single thorough treatment in office, using tiny Sim's speculum. (Life-size.)

On granular areas a tiny deep gutter is swiftly burned at $\frac{1}{4}$ inch intervals. For small areas punctures are made. Repetition once in 10 or 14 days is the average, two or three treatments sufficing. Progressive scar shortening does the inrolling later. Why the untreated intermediate strips should heal I do not know. For erosion with edema, shrinkage with

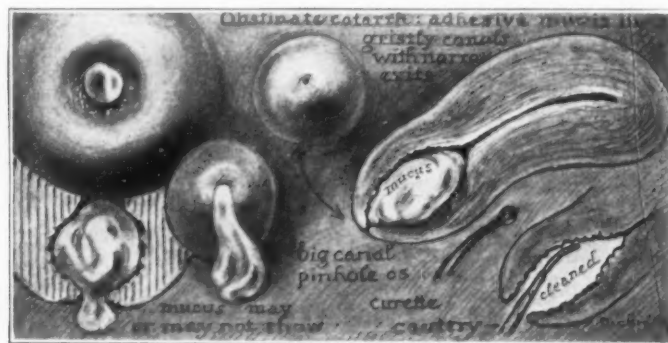


Fig. 3.—Aggravated catarrh of canal with distention and thickened lining. Reduced below life size, yet demonstrating the large amount of retained, inspissated mucus. The canal is cleared and the fine tip lays a stripe on opposite sides of the passage.

boroglyceride can precede cautery. Sticky secretion must be cleared away before the cautery is used. Narrow rough gauze twisted in the canal does this best, such as the discarded cut-off edges of gauze squares, or inch bandage. The wide gonorrheal canal is treated with two stripes, the narrow by punctures.

As a temporary measure till childbearing is done with we find no in-

frequent need of this particular treatment. Aching and dysmenorrhea and erosion, one or all, may oblige us to consider repair, even though the condition is likely to be reproduced by the next delivery. Here is the substitute. Of course in the presence of a torn sphincter poorly united or a cystocele or a retroversion with symptoms and which no pessary will hold, cervix work would accompany other surgery. Or, if extreme, cervix damage is supposed to cause sterility. The point is that easy labor is favored by the open cervix and that our suture scar tissue may hinder dilation in labor,—even with some of our best results.

Obstinate adhesive catarrh behind a somewhat narrowed external os we had been in the habit of treating by stretching the opening and using

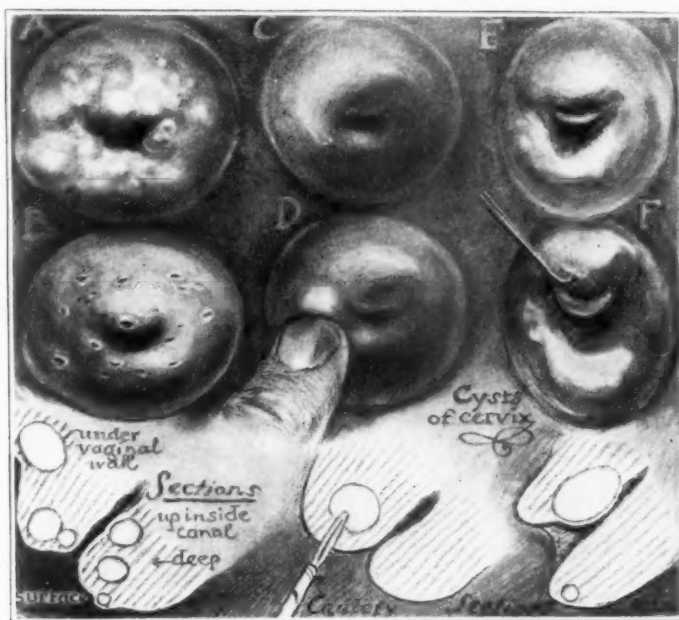


Fig. 4.—Cysts of cervix (reduced below life-size, as shown by size of finger). *A*, multiple cysts in various locations. *B*, Gaping openings left a few days after cauterization. *C*, Cervix without visible evidence of cyst, yet presenting to the finger the characteristic feel. *D*, the finger makes pressure and blanches the surface over the cyst, and the wire cauterization tip at once stabs this spot, as the section shows. *E*, Cyst deep in canal. This is brought to view by tenaculum in *F*.

a tiny sharp curette on the canal (Craig or Delatour). The sensation imparted by the gristly lining of these long standing cases is as if one were scraping over the back of linoleum or Brussels carpet. This is the very condition for which the delicate cauterization stripe works promptly. The canal is carefully dried out, the single tenaculum steadies it, and a longitudinal application is made on the two opposite sides of the wide oval passage. If necessary the side not touched may be striped two weeks later. Undue contraction, or tender scars have not resulted from any of these procedures. The conditions are quite different from the nose with its mucous membrane over bone.

The cystic cervix is especially adapted to cautery treatment. There are some cervixes so riddled with deep cysts that only complete amputation will relieve the pressure-ache. But even these are worth trying to cure with the fire-needle. Only, if one fails and desists, he must defer operation until the suppuration has entirely disappeared. The spear may cause a better depletion of a congested cervix, but its opening does not gape till granulation has closed the cavity, as is the case with the

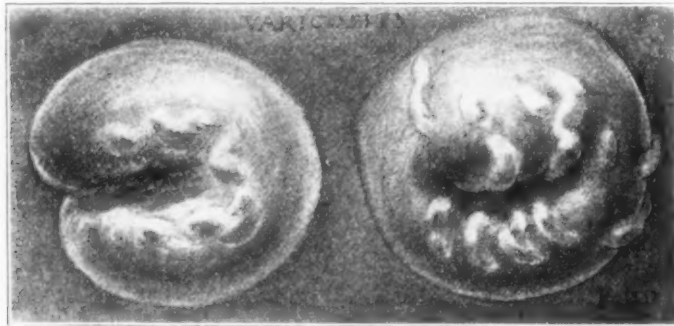


Fig. 5.—Varicosities of the cervix of unusual size treated with a low degree of heat in the wire.

cautery puncture, and therefore the same pocket may fill again, if cleanly cut open. The cysts that the finger feels and the eye cannot find may be made visible by finger-tip pressure, quick exit of the finger, and a stab at the blanched spot that remains just long enough to reach. The tenaculum draws open the canal for interior nabothian distentions. For deep punctures the wire is to be very hot in order to keep on penetrating.



Fig. 6.—Cervical polyps (not life-size). Removed at base by hooked cautery wire slid up the stalk.

In vascular and varicose womb mouths the wire should carry as little heat as possible—unless a decongesting ocze is desired. The amount of relief afforded by opening cysts is evidenced by the return of patients with the request that the old ache be eased. They recognize the recurrence of tension. The puncture is curative, the intervals of recurrence lengthening from months to years. Cysts and cancer seem not to belong in the same cervix. Eversion is responsible for some erosion and irrita-

tion. The longitudinal cautery stripe inrolls the surface and relieves certain cases.

Polyps are best handled with the cautery tip if the stalk is accessible. If not, the fine wire loop works better. Varicosities of the cervix are part of a general pelvic venous stasis and so of themselves of little moment. A swollen varicose cervix may "drag." In this case a low-heat puncture of any visible veins shuts them off and shrinks the cervix.

Objections. 1. Painfulness. One inflamed surface out of three or four is acutely sensitive. For these phenol in full strength to anesthetize, and Churchill's iodine after, are the considerate measures, but less effective. 2. Unnecessary elaboration and cost. It is true that argentic nitrate in 10-16 per cent strength is the treatment for endocervicitis (except cystic forms) which we chose if restricted to a single measure. Polyps we can avulse, cysts we can puncture with the narrow eye-knife or Buttle spear. But the gynecologist cannot well dispense with the fine, cautery tip for other purposes, such as urethral caruncle, chronically infected urethral glands, and to stab the small hemorrhoid. 3. Noise and apprehension. The motor slung under the floor obviates these. It is said that frequent application of argentic nitrate in borderline cases favors carcinomatous change, whereas the cautery is the ideal remedy in case of doubt.

SUMMARY

Thin, deep cautery lines (or punctures) heal and inroll the granular, everted cervix, and furnish a successful substitute for operation in a considerable number of cases. This is the treatment of choice with patients who are poor operative risks. Also when deferring repair until childbearing is overpast. For the cystic cervix it is the chief remedy. With rebellious discharges from an enlarged canal, linear cautery does well. This, an office treatment, with the delicate nasal cautery tip, entirely replaces the old Paquelin technic.

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(For discussion see page 652.)

ABDOMINAL ABORTION*

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BY THE term abdominal abortion is meant the termination of pregnancy by abdominal hysterotomy, in preference to a pelvic operation, before the period of viability has been reached. This operation is in my opinion indicated in patients to whom the continuance of pregnancy offers a serious menace to life and certain injury to health owing to the presence of some chronic disease.

The principal advantages of this operation are due to two factors. First, that it can be performed under local anesthesia on patients who are considered bad risks for the administration of a general anesthetic. And, second, that since the contraindication to pregnancy is a permanent one the termination of the pregnancy can be accompanied by sterilization of the patient. The present pregnancy can be ended and future pregnancies made impossible at a single operation with a minimum of risk. Although in this paper I shall go more fully into the technic under local anesthesia, I wish to state that I prefer to operate under a general anesthetic if the patient's condition warrants it, and that I do not advocate abdominal abortion in patients who can safely be given a general anesthetic unless sterilization to guard against future pregnancy seems desirable.

It is well recognized by the majority of the medical profession that the occurrence of pregnancy in women who have severe chronic disease is often attended with such danger to life and health as to render the induction of abortion a justifiable procedure, and it has been the custom of the medical profession to advise and perform such abortions after due consultation. Further, if the indication is a permanent one, it is customary to advise the patient that under no circumstances should pregnancy occur again, for the reason that the only alternative under such circumstances to prevent the patient's going through pregnancy, at the expense of her health at least, is repeated abortion, and repeated abortions on the same patient are properly considered unjustifiable.

My experience has been, however, particularly in the lower classes in the community, that although future pregnancies may be absolutely forbidden, the patient often fails to follow the advice given either because of ignorance of the preventive methods to be adopted, or be-

*Read at the Forty-sixth Annual Meeting of the American Gynecological Society, Swampscott, Mass., June 2-4, 1921.

cause of the failure of the methods advised, and the medical adviser is then confronted with the unpleasant alternative mentioned.

A certain proportion of the medical profession believes that it is not the function of the medical adviser to provide ways and means to prevent pregnancy and that the patient should be advised that pregnancy is dangerous and unjustifiable, and left to her own resources to prevent it. Such an attitude on the part of the profession seems to me nothing more than an attempt to evade responsibility which properly belongs to the medical profession. I believe that when a patient is advised that under no circumstances should pregnancy occur, the advice as how to avoid pregnancy should be given. I further believe that when it is recognized that a permanent condition exists which renders pregnancy so dangerous to the life or health of the patient as to warrant the performance of a therapeutic abortion, sterilization of the patient to render future pregnancies impossible is a justifiable procedure. I feel that unwillingness to adopt this course is a failure on the part of the medical profession to recognize and accept the proper responsibility entailed by the advice given. My experience has shown that no matter how careful advice may be given in certain cases, pregnancy does sometimes occur, and I believe it is preferable to make pregnancy impossible rather than to be content with forbidding it.

If the medical adviser feels that under no circumstances should future pregnancy be allowed and is willing to accept the responsibility of making it impossible, he has a double choice of procedure open to him. He may either terminate the pregnancy by one of the ordinary methods and at a subsequent time sterilize the patient by an abdominal operation, or have her treated with radium or the x-ray and sterility induced by the destruction of the ovaries thus producing an artificial menopause, or he may terminate the pregnancy and sterilize the patient at the same time by abdominal hysterotomy followed by the amputation of the uterus or excision of the tubes from the uterine cornua. My own preference is to accomplish the abortion and sterilization at a single operation rather than to subject the patient to two operations to accomplish the desired result.

The ordinary indications for which abdominal abortion may be indicated are first, serious cardiac lesions which have at some previous time whether during pregnancy or not resulted in decompensation, particularly in patients who are showing signs of failing compensation early in the present pregnancy, and second, cases of chronic nephritis where the disease is distinctly progressive and where the previous history shows that recent attempts at childbearing have resulted in the birth of stillborn children in spite of adequate medical attention. These two classes of cases seem to me to offer absolute contra-indications to pregnancy and there is practically no chance of suffi-

cient improvement taking place under any method of treatment to give any hope that pregnancy may be undertaken at some future time with any chance of a successful termination.

There are certain other indications which may warrant the operation in rare cases. For instance, quiescent though not arrested pulmonary tuberculosis in patients who already have children would seem to me a proper indication both for the termination of the present pregnancy and for sterilization after due consultation with the patient. In such cases the danger to maternal life is very great, and the life of the patient should be preserved for her children if possible. Occasional cases of diabetes which do not yield to ordinary treatment may also offer indications for sterilization in addition to the termination of the pregnancy.

The operation finds its greatest usefulness, however, in patients with decompensated cardiac lesions in whom attempts to restore compensation have failed. In these cases the use of a general anesthetic may be possible, but in most cases I believe operation can be more safely performed under local anesthesia. I recognize that a general anesthetic may be given with relative safety to a certain proportion of these patients if given by a skilled anesthetist, but I believe that there is a small group of patients to whom the use of any general anesthetic is extremely dangerous, and therefore believe that the performance of an operation under local anesthesia is a distinct advance. I personally prefer to use a general anesthetic in all cases where the risk to the patient does not seem too great owing to the increased freedom of choice of operation which it permits, but do not believe that any general anesthetic, no matter how carefully it is given, is safe in certain cases of cardiac decompensation.

When it is considered unwise to use a general anesthetic, our choice is spinal anesthesia, paravertebral anesthesia, or local anesthesia. I have not had sufficient experience with spinal anesthesia in cardiac decompensation to speak with authority, but I should hesitate to employ spinal anesthesia on a patient with decompensated heart on account of the sudden changes of blood pressure which accompany this method. The administration of paravertebral anesthesia is familiar to but few men in this country, and it is a long and exhausting process for the patient, and after a limited trial of this method I have become convinced that it is not a satisfactory method of anesthesia in patients with cardiac decompensation. I have therefore adopted local anesthesia preferably preceded by the administration of morphine and scopolamine in cesarean section at full term in cases in which the use of a general anesthetic has been advised against by a competent medical consultant, and, with the exception that in the occasional case first intention healing of the abdominal wound has been

interfered with by too free an infiltration of the abdominal wall with novocaine in a patient whose general resistance has been below par, I have been perfectly satisfied with the results.

I believe it is a great advantage to the patient and also to the operator that the patient should not be fully conscious during an operation under local anesthesia. I think that it militates markedly against the success of the anesthetic to have a patient hear what is going on in the operating room and I believe it is especially important for the operator not to keep asking the patient if the operation is painful. Many patients are exceedingly nervous about operation under local anesthesia, and if the operator keeps asking the patient whether his manipulations are painful, sooner or later the patient will decide that she feels pain and begins to complain, whereas if the patient is asleep at the beginning of the operation and the technic is carefully carried out, there will be no complaint of pain during the operation and next day the patient will have no memory of any discomfort.

This use of the twilight sleep sequence followed by local anesthesia, having proved successful in cesarean section at term, has been tried in several instances on patients relatively early in pregnancy, the earliest case in my series being between ten and eleven weeks according to the dates as well as to the physical findings. I feel that these early cases offer the most severe test as to the efficiency of this method of anesthesia because the tension on the pelvic peritoneum which must be employed to bring the uterus to the abdominal wound is perhaps the one manipulation most likely to cause pain and is therefore the most severe test of the efficiency of the anesthetic. If the operation can be done successfully in the early weeks of pregnancy in spite of this handicap, it can be done at any subsequent period with increasing ease as the uterus becomes larger and larger.

It has been my experience in the occasional case, especially in exceedingly nervous women, that the morphine-scopolamine fails to have the desired effect in producing quiet sleep and the patient may become rather excited as has been constantly reported in the use of twilight sleep in normal labor. This condition renders operation under local anesthesia practically impossible, and in one case in my series a patient with a badly decompensated heart insisted on remaining in a sitting position and could not be persuaded to lie down. Ether had to be employed on this patient although she was considered a bad risk for general anesthesia. The eventual result was satisfactory although the anesthetist reported the patient as being pulseless throughout the operation, and the ease and comfort of the operation from my standpoint were distinctly interfered with although the patient eventually did well.

When the abdominal abortion is performed under a general anesthesia it requires no particular description. The ordinary steps of the

abdominal cesarean section are followed in miniature and the patient is then sterilized either by supravaginal hysterectomy or by the excision of the tubes from the uterine cornua. I find that the preservation of the menstrual function means a good deal to comparatively young women, and in these cases I believe it wise to sterilize by excision of the tubes rather than by hysterectomy although the uterus is a useless organ.

The technic of the operation under local anesthesia warrants detailed description because I feel that the success of the operation depends on proper attention to details, and I have seen some lamentable exhibitions in cases in which the proper technic was not followed.

In the first place the patient should be brought under the influence of the morphine-scopolamine in a quiet room near the operating room and in the majority of cases she can be brought to operation sleeping peacefully and usually will not rouse fully during the operation if care is taken to avoid rough handling and unnecessary noise. The technic which I employ, which was first suggested to me by Dr. F. C. Irving, is as follows:

About two and one-half hours before the time set for operation the patient is given $1/6$ of a grain of morphine and $1/200$ of a grain of scopolamine by hypodermic injection. The scopolamine is repeated at 40-minute intervals, but it is not usually necessary to repeat the morphine. Three or four doses of scopolamine, but occasionally more, are necessary to produce quiet sleep. The patient's eyes are covered, the ears plugged, and she is brought to the operating room as quietly as possible, and care is taken not to allow any unnecessary noise or conversation in the operating room.

The field of operation is prepared quickly with iodine and the site of the incision is anesthetized by $1/2$ per cent novocaine, care being taken to anesthetize the skin thoroughly and also the fascia layer. I believe it is unnecessary to especially anesthetize the parietal peritoneum, for in my experience the peritoneum is either much less sensitive than has been alleged or is sufficiently anesthetized by the injection of the fascia to render manipulations painless. As soon as the abdominal wall has been carefully injected the operator must then make up his mind to wait the proper length of time before beginning the operation. This is very essential as the novocaine is a slow acting drug and does not produce anesthesia until after a definite interval has elapsed. If the patient is sound asleep at the time of the injection of the abdominal wall, five minutes is all the delay necessary for the novocaine to take effect before beginning the operation. If the patient is restless and moves about on the table, an interval of at least ten minutes should be allowed.

After the proper interval the abdomen is opened in the usual way, a low median incision being made just above the symphysis. If the pregnancy is of more than three and one-half month's duration, the uterus can easily be manipulated through such an incision without marked traction on the peritoneum. In earlier cases the uterus must be grasped with hooks and drawn up to the wound, at times considerable traction being necessary. This may cause some reaction on the part of the patient, but as a rule no great amount. The uterus itself is practically non-sensitive and can be opened at will, the ovum removed with the finger and the wound sutured without any marked reaction on the patient although some patients will move more or less and groan occasionally.

If sterilization is to be done under local anesthesia the most satisfactory method is excision of the tubes from the cornua of the uterus. In my experience the in-

jection of a syringe full of novocaine into the inner portion of the broad ligament and the cornua of the uterus is advisable before sterilization is performed. The presence of old abdominal adhesions increases the difficulty of the operation to some extent since peritoneal adhesions are extremely sensitive, but they can be injected with novocaine and cut and tied if a proper interval is allowed for the action of the novocaine. I believe the manipulations necessary to remove the uterus under local anesthesia would probably cause too much pain owing to the traction on the peritoneum which would be necessary, and have not attempted this method of sterilization under local anesthesia. The uterine incision and the abdominal wall are closed as in any ordinary cesarean section and the patient is then treated as any other laparotomy.

It has been my experience on questioning the patient the day after operation as to the amount of pain suffered during the operative procedure to learn that even in the cases where the patient apparently felt a good deal while the operation was going on as evidenced by restlessness and groaning, there was absolutely no memory of any discomfort during operation. Surgical shock has been largely absent in my cases. Postoperative vomiting has not occurred with this method of anesthesia, at least not in my limited experience.

I feel strongly that this method of operation is a distinct advance for patients who present permanent contraindications to pregnancy and in whom sterilization is considered justifiable. There is less shock and less loss of blood than in abortion by the pelvic route, and in addition the patient is protected from recurrence of pregnancy.

I do not wish to be understood as advocating abdominal abortion under local anesthesia in patients who are good risks for the use of a general anesthetic, but I have seen a patient with a decompensated heart lesion die on the table during the preliminary stage of anesthesia when ether was being given by a competent anesthetist and believe that such disasters may be prevented by the use of local anesthesia preceded by the morphine-scopolamine sequence.

In addition I would say that I should not advocate this method of operation, that is abdominal abortion and sterilization, for any patient unless careful study of the case showed a definite contraindication to future pregnancies which was of a permanent nature. I believe it to be an operation for the unfit patient whose life is threatened by a continuation of pregnancy and to whom future pregnancies are equally dangerous.

SYPHILIS AND CHILDBIRTH; OBSERVATIONS ON 661 CASES OCCURRING AT THE PHILADELPHIA GENERAL HOSPITAL*

BY EDWARD A. SCHUMANN, M.D., AND CHARLES S. BARNES, M.D.,
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SYPHILIS, that protean destroyer, may be found as a basic factor in almost any department of medicine or surgery. Nowhere, however, is the sinister and remote activity of the treponema more manifest than in its effect upon the fetus *in utero* and upon the infected mother carrying a syphilitic child.

The history of syphilis in obstetrics is interesting. Beginning with the recognition of hereditary infection by Paracelsus in 1529, the transmission of the disease from a mother to her infant and the pathology of the process was generally regarded as being a simple infection of the ovum by the unknown causative agent of syphilis. Then came a more detailed investigation of large case groups, and certain peculiarities of parental transmission of the disease were brought out. Thus, Colles' law, formulated in 1837, revealed the fact that occasionally an apparently healthy woman might give birth to a manifestly syphilitic infant and further that she might nurse that infant and she herself remain free from the disease. Then there appeared the law of Profeta which held that a woman presenting evidences of active syphilis, might give birth to a healthy infant, which, in turn, remained immune to infection via the maternal milk.

As a corollary to Colles' law it was believed that the infective agent of syphilis could be carried into an ovum by the spermatozoön, the mother remaining unaffected. With the discovery of the Wassermann reaction and the treponema these various laws were found to be untrustworthy and presently the dictum was evolved that every syphilitic mother gave birth to a syphilitic baby and that every syphilitic baby had a syphilitic mother.

It has become the custom to diagnosticate syphilis by means of the Wassermann reaction alone, especially when the disease is in a quiescent state, producing no symptoms. The writers hold no brief for this practice which is obviously unreliable, but it is nevertheless the fact that in most hospitals, at least in the gynecologic and obstetric services of those with which we are familiar, it is the rule to make routine Wassermann examinations of the blood of mothers, as well as from neonatal infants, and in a broad sense to regard as syphilitic all those who give positive and as nonsyphilitic all those having negative reactions, except in

*Read at a meeting of the Philadelphia Obstetrical Society, April 7, 1921.

special instances where diagnosable lesions are found associated with a negative Wassermann. In obstetric practice diagnosis by means of the Wassermann reaction is practically the only reliance of the obstetrician, since "obstetric syphilis" offers so very few demonstrable lesions in the mother that a diagnosis by clinical means is so rare as to excite comment when it may be made.

The writers, observing in the Philadelphia General Hospital, the result of routine blood examination and the acceptance of the blood report as evidence for or against the presence of syphilis, questioned the value of the whole procedure and have surveyed the records of a series of cases, to determine just what conclusions, if any, are to be deduced from routine Wassermann reaction. Several queries naturally suggested themselves, about as follows:

1. What proportion of parturient women in the Philadelphia General Hospital show the existence of syphilis as determined by the Wassermann reaction?
2. What proportion of these women give birth to living children and how many have stillborn infants?
3. Do any, and if so, what proportion of syphilitic women, give birth to healthy infants, showing negative Wassermann reactions?
4. Do any, and if so, what proportion of women not presenting clinical evidence and having negative Wassermann tests give birth to babies having positive Wassermann reactions or clinical evidence of syphilis?

These queries were answered more or less satisfactorily (generally speaking less) by a critical review of a fairly large group of cases.

1. In 661 cases occurring in the obstetric department of the Philadelphia General Hospital, in which Wassermann tests had been performed upon the mother, there were 192 which were reported positive, or an incidence of maternal syphilis in the obstetric department of 27.8 per cent.

When one takes into consideration the nature of the Blockley population (slightly more than half colored in our series) and the fact that many of these women were afflicted with gonorrhea or chaneroids or both, this incidence is strikingly low and suggests that a latent form of the disease was probably present in a considerable number of the negatively recorded cases.

2. The question as to stillbirths and living births among syphilitic women, was rendered possibly more obscure by the interesting statistics brought out by our analysis of case records. Of the 192 women having positive Wassermann reactions, 19 stillborn infants were delivered, or 10 per cent. However, among this same 192 women, 149, or 78 per cent, gave birth to living children. (A number not included left the hospital before delivery. This would increase both classes about proportionately.) Therefore of every five births in supposedly syphilitic women, four were living

infants apparently healthy, to one stillborn. In our series, 19 stillbirths resulted from 192 positive Wassermann cases, while only eight stillbirths occurred in the 469 negative Wassermann mothers, thereby showing the importance of syphilis as a causal factor in stillbirths.

3. Do syphilitic women give birth to apparently healthy children and in what proportion?—Profeta's law again. Among the series here reported 29 syphilitic women (that is Wassermann positive cases), 29 gave birth to 29 Wassermann positive or macerated infants, showing clearly the definite and intensely transmissible nature of the disease. But on the other hand 26 syphilitic, or at least Wassermann positive, women gave birth to 26 children presenting no clinical evidence of syphilis whatever, certainly to the time of their discharge from the Hospital, and all having negative Wassermann reactions based on blood taken from the cord at the time of delivery. There were then practically as many nonsyphilitic as syphilitic infants born to mothers reacting to the Wassermann test.

Fordyce and Rosen on reporting studies in Columbia University College conclude that the Wassermann test at birth in the infant is not to be relied upon. Ten days after birth is a better time for accurate interpretation of the serology. A negative Wassermann test in the face of clinical manifestations may occur in congenital syphilis. Therefore careful clinical examination is important. Bar and Daunay express much the same view as to the serology, saying that the best results are obtained from the cerebrospinal fluid.

4. Do apparently nonsyphilitic women give birth to frankly syphilitic infants? Colles' law. In our series six women with negative Wassermann reaction and with neither definite history nor physical signs of having or having had lues, gave birth to children having strongly positive Wassermann reactions.

The foregoing figures, fragmentary though they are, may readily serve as a basis for certain deductions and speculation along the line of the transmission of syphilis from a mother to her child.

In the first place, it is at once apparent that the routine method of diagnosis by one Wassermann reaction made on the mother, and a cord blood test made on the child at time of birth is almost worthless, and a study of records so made (as was ours) leads one to baffling half truths.

Kolmer, in a recent address entitled "Prenatal syphilis, with a plea for its study and prevention," urges detailed and careful parental study and treatment and says, "For the study of the incidence for prenatal or congenital syphilis, the Wassermann test alone with the blood of the child is of limited value and cannot be relied upon to give complete information. It is prone to yield an erroneous negative result in latent congenital syphilis, although invariably positive in active cases with lesions

and symptoms." The lutein skin test he considers of particular value and urges that children be subjected to thorough clinical studies.

The number of syphilitic women giving birth to living and apparently well children is significant. Most of the patients were entirely ignorant of their condition, had never undergone treatment of any sort, and yet were delivered of large, well nourished and lusty infants. These patients, furthermore, did not present the classical history of a long series of miscarriages, but were largely primiparae or had had one or two previous living births.

These facts lead to the interesting speculation, that perhaps, as has been stated, there may be a marked variance in the virulence of separate strains of spirochetæ, or do the laws of Colles and Profeta still apply, and does it remain a fact that the placenta may act as a barrier to infection? In this connection it should be remembered that the transmission of spirochetæ from mother to child has not yet been definitely shown. A recent personal communication from Professor J. Whitridge Williams, of Baltimore, to one of us states that the spirochetes are exceedingly difficult to find in the placenta and that many slides must be examined before a single one can be found in a villus. Dr. Williams has no reference to the spirocheta having ever been demonstrated in the placenta and in the decidua at the placental site in the same case.

Obviously it is true that inasmuch as the life history of the treponema is not known, there may be a stage in the cycle of development of the organism during which it is not yet manifest to an observation, and during which stage placental transmission takes place.

The writers take the view, however, that inasmuch as placental transmission has not been definitely proved and that there are certainly many cases recorded, some in our series, where a Wassermann positive mother gave birth to an infant which showed no evidence whatever of syphilis, either clinical or by blood examination, it is only fair to assume that Profeta's law has not been disproved and that the phenomenon is still possible though of uncommon occurrence.

The reverse of the situation, or where a woman presenting no evidence of syphilis gives birth to a frankly syphilitic child, offers still more interesting material for speculation. The whole subject of the paternal transmission of syphilis to the ovum is shrouded in mystery and no facts of importance have been elicited. Hirst states that a syphilitic infection is due to syphilis in the mother and that syphilis cannot be transmitted from a syphilitic father direct to the embryo without infection of the mother. It is, of course, well known that the spirochete, being three times the size of the head of the spermatozoön, cannot well be introduced into the ovum by this means. These organisms have been found in the seminal fluid and this fact has given rise to the supposition that the treponemas are carried into the ovum by way of this medium. Such view has not been

experimentally proved and, indeed, it seems highly improbable that seminal fluid can reach the fundus uteri or the tubes where fertilization takes place. Here again the question of a stage of spirochetal development in which the organism is sufficiently small to be borne into the ovum on the spermatozoön, is the most probable reason for paternal infection. Granting thus that the ovum may be infected by the father, does the mother necessarily become infected, or may the placenta act as a barrier? Reasoning *a priori*, the latter is most probably the case, inasmuch as placental transmission has not been proved. Edgar admits that "we know little of germinal and embryonal syphilis."

It may be said in conclusion that the entire subject of hereditary and congenital syphilis requires an immense amount of research in order to establish the true laws underlying it, and that with the resources at our command, hospitals having obstetric services should institute an investigation of the problem, utilizing the obstetrician, the pathologist, the serologist, the pediatrician and often the correlated members of the staff in the search for its solution.

348 SOUTH FIFTEENTH STREET.

(For discussion see page 655.)

PELVIORADIOGRAPHY AFTER FABRE'S METHOD

BY J. WARREN BELL, M.D., MINNEAPOLIS, MINN.

TWO years ago I was attracted by the description of a method of pelvimetry by Fabre, based upon an intelligent use of the x-ray.

Upon reviewing American literature with reference to this work, I found it in print but once, and then only given passing mention in Dr. William's Text Book of Obstetrics. I resolved to try the process, and I have convinced myself that, with practice, this method can be made to give excellent results. Through the courtesy of Dr. J. C. Litzenberg six plaster models of deformed pelves were studied at the University Hospital of Minnesota by the operator, Miss Bagameil. The results of this study showed that the greater the deformity of the pelvis the more difficult it became to place the frame in the proper position for obtaining accurate results. Where the deformities were not extreme, some of the results very closely coincided with the true measurements of the models.

Next a skeleton was placed in the frame (Fig. 2), and from the print the outline of the inlet was drawn upon graph paper and then cut out of cardboard. This piece of cardboard fitted within 0.5 cm. the size of the inlet.

I quote from the text of the originator of the method the following, with due apologies for the translation.

Precis d'Obstétrique par Fabre, p. 512.

As a result of the difficulties of application of pelvimetry by Focher, I decided to apply radiography to the study of contracted pelvis.

Pelviography presents some very important advantages: the process is painless: it is of easy application during pregnancy, and gives very exact results: by an automatic process, the accoucheur may have precise therapeutic indications, and after confinement, it verifies the fact, if the operations employed were indicated.

The disadvantages of radiography are due to the nature of the x-rays, which leaving the cathode, diverge and distort the image. If one tries to reproduce the outlines of the superior strait, the image is not only enlarged, but furthermore the distortion is irregular, for it is impossible to place the patient in such a position that the plane of the superior strait is exactly parallel to the photographic plate. The consequence is that the bony portions most distant from the sensitive plate are enlarged and deformed: the portions near the plate are less distorted.



Fig. 1.—Lateral view of patient, showing spinal deformity.

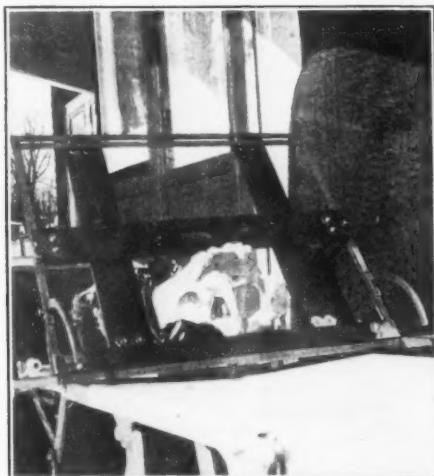


Fig. 2.—Frame, with skeleton in the position of patient. Legs are removed.

Indications of Metric Radiography.—

1. Before marriage. In all cases where the skeleton presents a congenital or acquired deformity, congenital dislocation of the hip, either unilateral or bilateral, infantile paralysis and hemiplegia; white tumors of the lower limbs, coxalgia, early or late rickets, etc.

2. During pregnancy. At a time anywhere in pregnancy there is an indication for radiography of the patient whenever one has the presumptive signs of lesions of the pelvis, and more emphatically when one has absolute signs. The therapeutic decisions should be based upon exact measurements of the inlet.

3. After confinement. Every time that the mechanism has presented anything particular, or that the abnormality cannot be explained by clinical examination. The conduct of the next confinement would then be established with certainty.

Process of Metric Radiography.—This consists of radiographing the inlet at the same time that the region is being measured by metallic scales (rules) with lines one centimeter apart. The scales are placed in the plane of the diameter of the pelvis which one wishes to measure. These scales undergo the same distortion as the inlet:

upon the plate after development, the number of teeth correspond to the number of centimeters, whatever the dimensions of the image.

Metric radiography only gives accurate results for the measuring of the inlet. To obtain this result it is necessary for the plane of the frame to coincide as nearly as possible with the plane of the inlet. But the different diameters of the inlet are not in the same plane. It is for this reason that my frame is double and is composed of four toothed scales which gives two, the anterior and the posterior (which) are in the transverse pubic plane that contains the oblique and transverse diameters, and which gives two lateral scales in the promontopubic plane. Upon the radiogram the four scales make possible the establishment of a quadrangle deformed by the x-rays, but which in extent, corresponds to squares one centimeter on each side. The coincidence of the frame and the planes of the inlet does not have to be absolute to give exact results.

Difficulties of Application of the Method.—

1. The nature of the rays employed is not very important. All the radiographic machines have given good radiograms of the pelvis. I, myself use a coil of 50 cms. spark, the automatic interrupter of GaiFFE, a Maeller tube. In the coil I pass

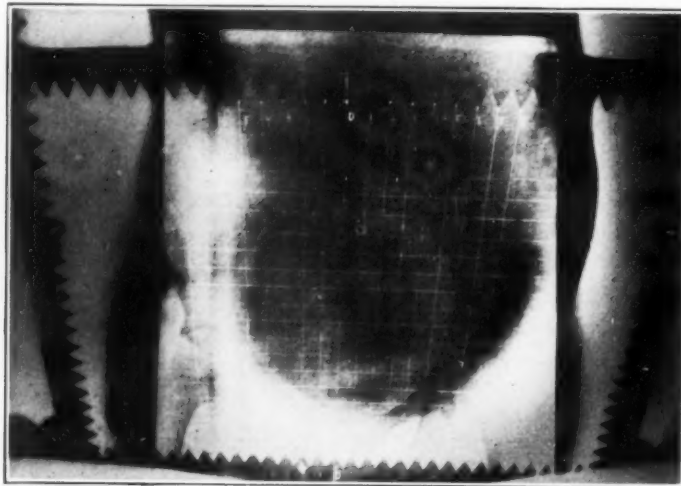


Fig. 3.—Radiogram of pelvis showing notches in frame, and lines joining same.

three or four amperes at 110 Volts; in the tube five milliamperes; the time of exposure is from three to five minutes, the spark compensation being ten centimeters. With the new installation of intensive radiography the picture of the pelvis is obtained in ten to twenty seconds. It is essential not to have the rays too penetrating, lest they traverse the promontory without giving the image. The process is applicable at any period of pregnancy.

2. Distance of the tube from plate. I have adopted a distance of 50 cms. as a fixed distance. At this distance the harmful influences upon the fetus or the skin of the mother are nil. I have never encountered an accident.

3. Necessity of the ventral position.—In this position alone it is possible to obtain a good image of the inlet; only then is the promontory well defined. The importance of this particular point is considerable and explains our good results. On the contrary, in the dorsal position, the image reproduces the posterior surface of the sacrum, the promontory is invisible and the circumference of the innominate line is not reproduced.

Manual Operation.—

1. Determination of the point of the pubic landmark. The patient is placed in the dorsal position. One determines the upper border of the pubis and one cm. below this border one traces with a ruler and a dermographic pencil, a horizontal line which extends over the sides of the thighs: this line permits us to be assured, when the patient is lying on her abdomen, that the anterior scale of the frame is in the proper relation to the upper borders of the pubis.

2. Determination of the posterior landmark. The patient lies on her abdomen. One traces a horizontal line which passes across the dimples of the rhomboid of Michaelis: this line corresponds to a line parallel with the transverse pubic plane of the inlet. Above this, one draws a second line, 3, 4, or 6 cms. according to whether the promontory has been established low, normal, or high by vaginal examination. In cases where the vaginal examination should not be done (as before marriage), the point for the upper landmark is fixed at 4 cms. above the line through the dimples.

3. The patient is placed in the frame. The patient is placed in the frame, lying upon her stomach, the elbows in front on the cushion. The pubic scale is made

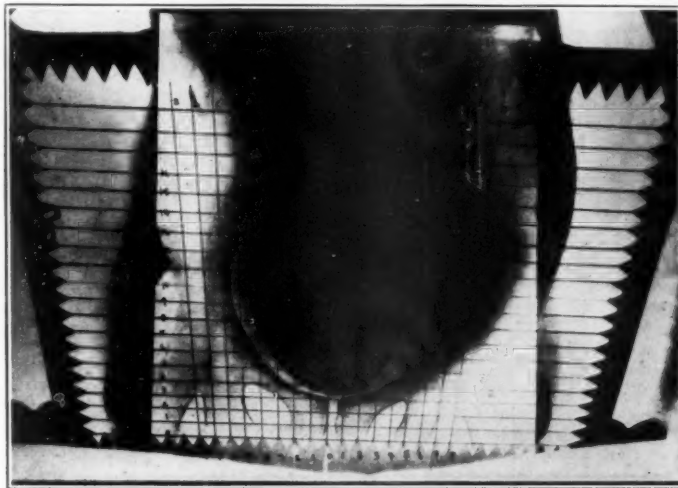


Fig. 4.—Same radiogram retouched.

to coincide with the line which is visible on the lateral aspect of the thighs. The dorsal scale of the transverse pubic plane is in contact with the line of the dimples: the scale of the promontopubic plane (scale enclosed in wood) is in contact with the upper line corresponding to this plane.

4. Manner of placing the tube. The tube is placed upon a vertical median line, 50 cms. above the plate, and the normal rays of incidence fall at the side of the feet 20 cms. from the pubic scale.

5. Duration of exposure. The exposure with our installation lasts from three to six minutes, depending on the corpulency of the patient. During pregnancy the time of exposure is about six minutes. With the installation of the intensive radiography the exposure is less than a minute; with the intensifying screen this is reduced to ten seconds.

6. Development of the negative. The negative is developed exactly like an ordinary photographic plate.

7. Ruling the negative. The opposite teeth of the scales are numbered with pencil, and the corresponding teeth on the pubic scales are joined by straight

lines traced with pencil upon the negative. The teeth of the lateral promontopubic scales are joined by straight lines. One thus obtains an irregular quadrangle with sides of one cm.

8. Location upon squares. To reduce the radiogram and give the inlet its true dimensions, it suffices to reproduce the curves of the inlet upon one cm. square "graph" paper, by marking the points where the curve cuts the lines traced upon the negative.

I have been able to compare, in a certain number of cases, the radiogram made during life, with the pelvis, recovered at autopsy. The errors were about 2 mm., that is to say, the process is extremely accurate and much more precise than with all the other clinical processes of measurement.

During the last ten years the process has rendered me great service from the clinical point of view, and I have been able to establish a true radiography of the pelvis actually in 638 radiograms.

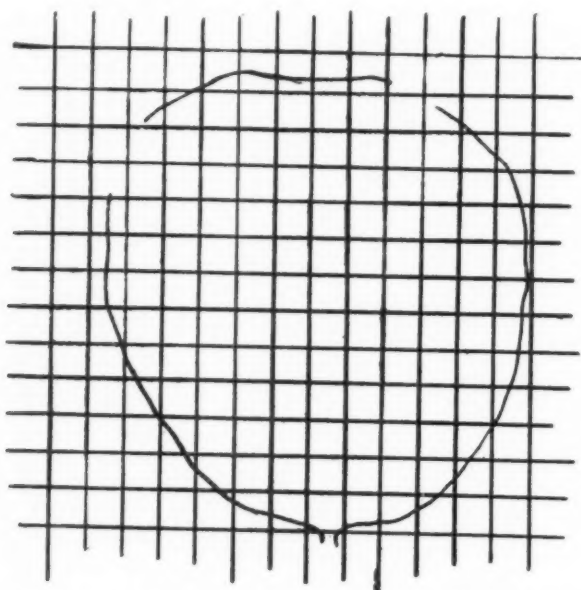


Fig. 5.—Showing outline of pelvic inlet plotted on graph paper with centimeter squares.

The above paragraphs show what this method has done in France. I present herewith a case history, with notes pertaining to the application of this method.

In December, E. F. appeared at the Free Dispensary. She was about 4 feet 6 inches tall, had a marked lumbar kyphosis and a slight scoliosis. There was a bump over the lumbosacral region which made the external conjugate measurement valueless. (Fig. 1.) The patient had been ill as a child with spinal caries.

There was a 7½ months' pregnancy, with cephalic presentation, occiput lying partly in the inlet. The outlet was measured by several men, and the bituberous measurement was 7.5 cms.

By vaginal examination the head was found partly in the pelvis and in this position it interfered with taking the internal oblique diameter. The measurements of the pelvis externally were as follows: Interspinous, 23¾ cm.; intercrystal, 25 cm.; intertrochanteric, 26 cm.; external conjugate, 20 cm.

The accompanying radiograms were made.

Technic.—The patient was placed in the ventral position, with a large cassette beneath her abdomen which contains the 17 by 22 inch film and an intensifying screen 10 by 14 inches.

The tube was placed at a point towards the patient's feet 50 cms. from the symphysis, and 50 cms. from the table. The tube is so tilted that the direct rays enter the outlet of the pelvis and leave through the inlet.

The frame seen in the illustration, is made of wood, and is adjustable to the size of the patient. The frame is applied as nearly as possible to the plane of the inlet.

This plane is determined by the three points:—the top of the symphysis, and the two dimples of the posterior inferior spines of the ilium.

The wooden frame contains a lead layer with notched edges, the notches being one cm. apart.

The film must be large enough to show the shadow of the entire frame.

Reading the Film.—By joining opposite notches the accurate measurements of the picture of the pelvis can be quickly obtained.

In the illustration these connecting lines have been drawn in (Figs. 3 and 4).

From this film, with the unavoidable distortion, a true outline of the inlet has been made upon graph paper with centimeter squares (Fig. 5).

The accompanying sketch shows this outline after the distortion has been removed.

The patient was delivered at the University Hospital, on Dr. Litzenberg's service, and when discharged it was found that the internal diagonal conjugate was larger than 12 cm. I was able to verify this later, and feel justified in reporting the case as a successful application of Fabre's method of radiopelvmetry.

600 PHYSICIANS AND SURGEONS BUILDING.

FIBROMYOMA OF THE UTERUS ACCOMPANIED BY HYPERTHYROIDISM

BY WILLIAM M. THOMPSON, M.D., F.A.C.S., CHICAGO, ILL.

THAT a relationship exists between the sexual system and the thyroid gland has long been known. The ancients recognized the thyroid as the sex gland in man and animals. Paleontologists have demonstrated the existence of the thyroid as derived from the uterus of paleostrean ancestors. Hypo- and hyperthyroidia as a factor in sexual changes has been known for several centuries, but it was not until 1859 and 1862 that Charecot's publication brought the knowledge of his day into tangible form. Until recent years our knowledge was chiefly clinical, probably beginning with Halstead¹ in 1888 and 1889, but modern observers have been adding experimental to clinical data, until today the thyroid is recognized as the chief regulator of metabolism. The iodine or iodine-containing hormone of the thyroid is the most powerful activator of metabolism as a stimulus of the oxidation process. This stimulus causes a work hypertrophy of the gland, which is evidenced in menstruation and pregnancy.

It would be quite easy to work out the sex relationship from experimental and clinical data were it not for the fact that we now enter the realm of the endocrine² chain which controls the growth and development and functions of the whole body. Experimental evidence has not yet reached such exactitude as to the thyroid, the adrenal, the hypophysis and the ovary. This field of experimental medicine is so vast and with depth so far unsounded that one enters with trepidation into such a discussion. There are numberless clinical reports, but they lack correlation and are sometimes conflicting. The experimental evidence to date is meager and unsatisfying.

But in the meantime our patients are coming to us with their problems of artificial menopause following hysterectomy, of menorrhagia, metrorrhagia, sterility, hyperthyroidism and myoma, and it is no longer permitted to dismiss the subject with the diagnosis of hysteria or neurasthenia. The ovary, the thyroid and the adrenal glands are the most important in relation to gynecology and obstetrics. Perhaps the pituitary should be added to this list. Each one of these glands has been studied as to its direct relation to the sexual system. In 1917, the American Gynecological Society³ published a symposium on the relation of the glands to gynecology and obstetrics. A review of these contributions confirms our belief that the clinical study and experiments so far have only brought out the individual relationship of each gland to gynecology and obstetrics. It remains for our laboratory workers to collaborate and preserve their records that we may better understand the interrelationship of the glands. Vincent⁴ in describing the functions of the adrenals notes the resemblance between the cortical adrenal cells and the interstitial cells of the ovary. The adrenal cortex (as well as the accessory cortical adrenals) is developed from the germ epithelium and the evidences are now strongly in favor of the view that it has certain important functions in connection with the growth and development of the sex organs. There is a considerable clinical evidence that tumors of the adrenal cortex are frequently associated with sex abnormalities. Hypertrophy of the adrenal bodies occurs during pregnancy. It has been noted by Halban that hair or down (due to adrenal activity) upon the face or body of a woman occurs during pregnancy.

Goetch⁵ admits a close relationship in the function of the pituitary and sex gland and cites experimental evidence and clinical observations, that the overfunction of the anterior pituitary lobe is associated with overactivity of the sex gland.

The inefficiency of the pituitary secretion in the individual is followed by underdevelopment and genital aplasia in the child and retrogression in the adult. Primary alterations in the sex glands, as in pregnancy, and after castration, are followed by pituitary hypertrophy and hyperplasia.

L. Loeb⁶ says that cyclical changes occur in the ovary and secondarily only in the uterus. The primary cyclical changes in the ovary are in sequence: Follicle ripening, ovulation and corpus luteum formation. Normally, the corpus luteum inhibits ovulation. During pregnancy the life of the corpus luteum is prolonged. The corpus luteum has a sensitizing action on the uterus.

Corresponding to and dependent upon cyclical ovarian changes, cyclical uterine changes occur. The cycle consists of heat, growth with associated glandular activity, then retrogression and interval;—heat probably due to maturation of the follicles and dependent on the absence of the corpus luteum, growth activity due to the corpus luteal secretion which is followed in the interval by a period of rest. Pregnancy causes a persistence of the corpus luteum and is characterized by an accentuation, but not a prolongation of the active phase, and an inhibition of the uterine cyclical changes throughout gestation. The corpus luteum substance subserves at least two functions, inhibiting ovulation, and producing a substance which causes growth in the uterus.

Marine⁷ who has done an enormous amount of work on the thyroid of fish and dogs, as well as men, states that the thyroid enlargement seen during puberty, menstruation, and pregnancy, is really a work hypertrophy, a condition similar to simple goiter. Physiologically the iodine-containing hormone is the most powerful activator of metabolism known. It acts by stimulating the process of oxidation.

Puberty, menstruation and pregnancy⁸ stimulate the thyroid and cause work hypertrophy. Hypertrophy may be prevented by supplying the iodine-containing hormone. There is evidence in man of the thyroid sex gland interrelation recognized in the female in association with the development of secondary sexual characteristics with menstruation and pregnancy.

Evidence, though meager, is obtainable, that would tend to indicate that the interstitial cells of the ovary, perhaps also the adrenal cortex play a major rôle in this relation in the female.

Physiology teaches that specific cells secrete only specific secretory products. It is not conceivable, therefore, that the cells of the thyroid can secrete a modified iodine substance, but that due to some inhibiting influence they secrete less or because of the stimulating influence of some focal infection or pathology in other organs coming under their influence, they secrete more. Pregnancy⁸ increases the work of the thyroid and prolongs the life of the corpus luteum which prevents the ripening of the follicles in the ovary. Is it not possible that a growth of the uterus which increases the number and activity of the cellular tissue of the lining of the uterus may stimulate the thyroid to increased function? We know that pregnancy takes place in the fibroid uterus and that pregnancy stimulates the growth of fibroids.

Therefore, fibroids do not inhibit the function of the ovaries. Does the fecund uterus stimulate the thyroid directly or indirectly through the ovary, or does the secretion of the corpus luteum activate the thyroid?

It has been noted that ablation of the ovaries causes enlargement of the adrenal cortex as well as pituitary hypertrophy and decreases the activity of the thyroid. Cretinism is an example of hypothyroid and with undeveloped sexual organs. As an example of the adrenal and thyroid hypofunction in pregnancy, I would like to cite the case of Mrs. L. First and only pregnancy eight years ago. In the early months she began to show signs of toxemia. At the sixth month her symptoms were persistent vomiting, albuminuria, dry, thickened skin, loss of hair, and tachycardia, a situation which finally compelled the emptying of the uterus of an almost moribund woman. After a protracted convalescence of nearly a year, for a time she regained her health. Since then she has a number of times gone two or three months without menstruating, during which she shows symptoms of hypofunction of both thyroid and adrenals, a slow pulse, loss of hair, dry skin, bodily torpor, and lowered blood pressure. It is probable that the pregnant uterus exerts its influence upon the thyroid adrenals and pituitary through the ovary.

As an illustration, recall the growth and differentiation of the female from the male pelvis. The ovary activates the pituitary as does the testis in the male. Thus the influence of the ovary is not exerted independently but through other glands.

If instead of attempting to gather from our accumulate knowledge some system by which the direct influence of the secretion of one gland upon the rest of the chain can be analyzed, it would be much simpler if one could adopt the hypothesis that the ovarian⁶ secretion when activated increases the iodine consumption and this demand is met by the thyroid with an increased iodine output. Certainly, the experiments of Marine and Lenhart⁷ on fishes and men give some promise that this may be the case.

In 1881 Kaprezik pointed out the frequency of weakness of the heart muscle with uterine myoma. Since then many papers have been written on this subject. It is thought that from 40 to 50 per cent of cases of myoma show myocardial changes. Gleck made pathologic examinations which led him to conclude that brown atrophy of the heart muscle is characteristic of fibroids without hemorrhage, and that fatty degeneration is present when there is profuse hemorrhage from the fibroid.

In studying the case records of some of these reports of heart disease and myoma of the uterus, we find a surprising similarity in the symptoms to those of thyroid hyperfunction as expressed in the rapid pulse and chronic fatigue and muscular weakness. The effects of

hyperthyroidism upon the heart muscle^{10, 11} are too well known to need repetition in this paper, but our attention has so frequently been drawn to myocardial disease with myoma that we have not always made a thorough examination of the condition of the thyroid, but have been content to stop with the heart. We do not wish to deny the direct toxicity of the thyroid on the heart muscle, but a closer study of some cases so reported will show that the following proposition and conclusion is more logical. As myomas become most troublesome as a woman approaches the menopause, and as this particular type of hyperthyroidia is most frequently met with at that time as described by Plummer,¹² then the thyroid which up to that time exists as a simple adenoma is stimulated by the toxicity of the myomata, and we have the excessive output of the thyroid hormone. This produces an increased metabolic rate and stimulation clinically evident by nervousness, tremor, loss of strength and weight and in the later stages of myocardial degeneration. Such women, with goiters that are easily thrown out of balance, may have shown symptoms previously from the effects of focal infection or pregnancy on the thyroid and arrive on the threshold of the menopause with an already damaged heart muscle.

The following cases illustrate the points that I wish to make:

CASE 1.—Mrs. M., aged fifty-two, married twenty-nine years, one child, menstrual history since January 1, 1920, has been irregular and severe. There was some leucorrhea. For three years she has had severe pain during the periods, which has increased lately. No loss of weight, has never been strong, has had treatment for years for hyperthyroidia and heart trouble. Examination: Well developed woman, weight 150 pounds; skin pale; muscles flabby; hemoglobin 60; tachycardia; pulse 120, tremor. Heart: Diminished first sound; systolic murmur; outer border reaching the nipple line; blood pressure, systolic 100; diastolic 70. Thyroid: Much enlarged, partially intrathoracic of the adenomatous type. She dates the beginning of the enlargement from puberty. Abdomen: Nodular tumor reaching five fingers breadth above the symphysis. Vagina: relaxed. Uterus: cervix pale, dilated two and a half inches; tumor presenting in the cervix about the size of a child's head. The patient was sent to the hospital for one week for observation and treatment. At the end of this time pulse dropped to 100. On April 5, 1920, total hysterectomy was done, leaving one ovary. She stood the shock of the operation fairly well, but in 24 hours a thyroid storm set in and pulse went to 160. There were tremors and exhaustion. Had it not been for the week's rest and digitalis, I believe she might have succumbed, for this condition lasted about ten days, at the end of which time the pulse had gradually dropped and the patient soon returned to her home. On the sixteenth of June her pulse was 100. She seemed improved, but complained of flushes. On the eighth of October, after walking some distance, her pulse was 100 and her heart action considerably stronger; also there was a noticeable diminution in the thyroid.

November 1, pulse 85; blood pressure 135-80; headache had disappeared; feels much less fatigued and can walk farther than she has been able to do for years; weight 165 pounds. Pathologic diagnosis: Fibroids, with a large intrauterine pedunculated fibroid tumor, 18 by 18 by 10 cm. Six fibroid nodules in the body of the uterus, otherwise uterine muscle normal. The important points in this history are: That this woman has never been strong since she passed puberty; that she has

noticed an intermittent enlargement of her neck for nearly twenty years, and while she only recently became aware of her pelvic condition, she has long known that she was not normal in that respect. The pain that she complained of during menstruation was the effort of the uterus to deliver this large pedunculated fibroid.

CASE 2.—Mrs. H., aged thirty-six, four children. A frail, delicate woman, weight 107 pounds; has weighed 130 when in good health. Suffered serious damage to the vaginal outlet and uterus during her first confinement, and also had thrombophlebitis of the left external iliac following another confinement. Neck: First examined in 1911; a goiter was noted. At that time the patient complained of being dizzy and weak. Her pulse was rapid and she had tremor. These symptoms followed each confinement with increasing severity. When she had recovered from her third confinement her lacerations were repaired and she improved materially, gaining more weight than she had ever had. Following her fourth confinement, the recurrence of the hyperthyroid symptoms was so marked that she presented herself for an examination. Her pulse was 120; large thyroid of the adenomatous type; mild exophthalmos. Heart: Soft first sound; irregular. Abdomen: Negative except for some pain and dullness over the symphysis. Vagina: Muscles thin and showing the scars of repair. Uterus: Large, retroflexed, filling the pelvis as is found in women between the third and fourth month of pregnancy when a retroflexed uterus fills the entire pelvis. Diagnosis: Fibroid tumor of the uterus. Menstruation: Thirty-day type, profuse eight to twelve days flow. This woman was put to bed for five days for observation and treatment and on the thirteenth of November, 1919, supravaginal hysterectomy was performed with removal of the appendix. The next day a thyroid storm developed, her pulse went to 140; her temperature remained normal. This continued for five days and her pulse began to slowly drop. At the end of three weeks she departed for her home, weak and shaky. February 14, 1920, pulse 82, eyes normal. She seemed to be gaining in strength. Later she complained of flushes and weakness and her pulse mounted to 100. There were no eye symptoms, but a return of some of the hyperthyroidia is somewhat disappointing. At her last visit the pulse was 80, thyroid markedly decreased.

Through Dr. W. A. N. Dorland, I am privileged to report another case (No. 3).

CASE 3.—Mrs. R., forty-four, multiple fibroids with hemorrhage. Tachycardia 160; large goiter; exophthalmic, existing since marriage. October, 1916, supravaginal hysterectomy was done. There was considerable tachycardia following a twenty minute hemorrhage. Convalescence slow. May, 1917, the circumference of the neck was one inch less. In the spring of 1919 her pulse was normal and the thyroid gland hardly palpable.

CASE 4.—Mrs. S., aged fifty-four; married; one child. January 22, 1906, was hysterectomized for a large fibroid. At that time she had a goiter which had grown since her sixteenth year. It was of the adenomatous type. She complained of headache, but had no tachycardia; some menstrual pain. As the thyroid continued to grow and became partially intrathoracic, making respiration difficult, she was operated on October 11, 1920. All of the thoracic portion of both lobes was removed, with a part of the isthmus and the upper lobes, leaving sufficient gland to carry on the function.

Using a negative to prove a rule, in this case it is evident that the abnormal growth of the thyroid was stimulated by puberty (it was first noticed at puberty) but the fibroid tumor did not affect the function of the gland, nor did the thyroid subside after hysterectomy, as was observed in the other cases, but continued to grow until operation was necessary, because it obstructed respiration.



Case No. 1 had suffered from hyperthyroidia since puberty, but her condition had grown worse since the growth of the fibroid. Case No. 2 had an exaggeration of thyroid symptoms following each pregnancy. Case No. 3 dates her hyperthyroidism from marriage. Case No. 4 had no hyperthyroidia, but her gland did not diminish after hysterectomy, as did the thyroids of the women who had hyperthyroidism. None of these fibromyomas were reported to be undergoing degeneration.

SUMMARY

As a sex gland the thyroid is influenced by menstruation and pregnancy. The hyperplasia and cell proliferation of the uterus found in fibromyomas may activate the thyroid. The myocardial weakness noted may be due to hyperthyroidism and not directly to the fibromyoma.

It is important to study the function of the thyroid gland in every case of myoma of the uterus. Hyperthyroidism and a damaged heart muscle are serious complications and no operation for fibromyoma should be undertaken without considering these possibilities.

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THE PREOPERATIVE STUDY AND PREPARATION OF GYNECOLOGICAL PATIENTS

BY WALTER T. DANNREUTHER, M.D., F.A.C.S., NEW YORK

"DID the patient recover? That's the acid test in surgery." Such was the glaring caption appearing in a recent issue of one of our widely circulated medical journals, to advertise the wares of a medical publisher. I wish to register a protest against the acceptance of any such axiom by the modern surgeon, for although it may have been pertinent in the early days of aseptic surgery, it surely must be deemed obsolete now. But if the advertising headline were paraphrased to read, "Were the patient's symptoms entirely relieved? That's the acid test in surgery," it would emphasize the necessity for the stupendous amount of thought, knowledge, experience, and skill that is required to insure real success in operative work, as the publisher intended. Much has been written by acknowledged authorities and specialists regarding the sins of omission and commission on the part of general practitioners in failing to recognize early operative conditions, and also decriing unnecessary and bungled operations by the surgical tyro, but comparatively little has been said concerning the final outcome of the huge number of operations performed by those who are regarded as at least reasonably competent in their respective fields.

All operative cases may be included in either one of two great classes: emergency or elective. Confining further consideration of the subject to gynecology, the assertion may be made that few of our operations are emergency and the majority come within the second category; elective. There is therefore almost invariably ample time for preliminary study and preparation of the patient, and if the gynecologist would be universally successful in his operative work, there is much for him to do besides furnishing the patient with a professional anesthetist and applying his mechanical technic. No one but a hypochondriac is interested in the topographical peculiarities of her pelvic organs, but every one is intensely interested in the backache, leucorrhea, dysmenorrhea, menorrhagia, or other symptoms from which she may be suffering. Consequently, it is obvious that the relief of these disturbances must be reasonably certain, for it is the belief that her ailments will be cured by the operation that induces the patient to submit to it. Any operation that fails of this purpose, irrespective of the anatomic result, is a one hundred per cent failure. The honesty of intention of the gynecologist can be readily assured by his

asking himself and answering affirmatively the following two questions: Am I sure that the patient cannot be relieved in any other manner? Would I urge operation if the patient were a member of my immediate family?

Operating room asepsis and the relatively easily acquired technic have made pelvic surgery so safe that the patient's recovery is no longer a criterion of the operative success. In fact, it might be well if gynecologic operations were a little more hazardous, as the risks involved might then discourage some of the promiscuous operating that is being done. My observations have convinced me that some of us are all too ready to curette uteri and attempt plastic operations especially, without due regard for the ultimate result from the patient's standpoint. According to Sir D'Arcy Power, there are three stages in the career of a surgeon. "In the first he loses the fear of hemorrhage; in the second he ceases to multiply operations; in the third he acquires the moral courage to stop in the middle of an operation when he finds the condition inoperable. There is a final stage which he never attains with the present span of life, the ability to gauge correctly the vital resistance of the patient; yet on this depends the success of every operation." These are trite aphorisms, yet a very important stage has been omitted: the preliminary one in which the necessary training and ability are gained to justify his assuming the responsibility of operative work. And while Power may be correct in his belief regarding our inability to attain the final stage, it certainly behooves us to make a sincere effort in that direction.

If, then, we interpret "operative success" to mean not only the recovery of the patient but also the relief of the patient's symptoms, it is obviously essential that we take cognizance of all those factors that contribute to it. These may be enumerated as follows: (1) the competence of the gynecologist; (2) exact diagnosis; (3) the patient's metabolic capabilities; (4) the preoperative treatment of the patient; (5) a skilled anesthetist; (6) proper operative technic; and (7) the postoperative treatment. When all these items have been accorded due attention, and the operation proves a failure notwithstanding, either by the subsequent persistence of symptoms or the patient's death, then, and then only, can it be truthfully said that we have entirely fulfilled our obligations.

In the process of development of our diagnostic methods, the objective examination of the patient has gradually superseded the history in importance, probably because the modern instruments of precision make it more attractive. Yet, it is just as fallacious to rely upon the pelvic examination alone as it used to be for our forefathers to make snap diagnoses after questioning their patients. In gynecology, particularly, an accurate diagnosis depends upon a thorough itemization

and correct interpretation of the symptom-complex in the basic anamnesis, as well as upon reliable laboratory findings and the objective evidence obtained by the physical examination. While the importance of careful history taking and tabulation of case records is well recognized by many, it is also true that the interrogation of the patient is often carried out in a more or less aimless manner, perhaps without any definite purpose in mind or real comprehension of the significance of the information conveyed by the patient. Throughout a somewhat extensive experience in postgraduate teaching, it has been apparent that many practitioners coming for instruction in special work lack system in their methods. This inherent fault, together with the limited time that a busy physician usually devotes to a single patient, is undoubtedly responsible for many inadequate histories and subsequent diagnostic mistakes. Disturbances of the endocrine glands alone comprise a large number of the problems confronting the gynecologist, and a perfunctory history in these cases is not only useless but may be entirely misleading.

Until the practice of medicine becomes an exact science we all shall be guilty of occasional diagnostic errors, but those of us who confine our activities to one of its special branches must be particularly careful lest we too readily correlate cause and effect incorrectly. The possibility of a remote cause of symptoms should always be borne in mind, and the localization of a symptom in close proximity to some organic condition that deviates from the normal is not conclusive evidence that that particular abnormality is the immediate cause of the symptom. This is well illustrated by the frequency with which operations for the correction of retrodisplacements of the uterus fail to cure sacral backache. A careful analysis of such cases will usually reveal the presence of an associated posterior parametritis, flat-foot, an overloaded sigmoid tugging on its mesentery, a focus of infection in the tonsils or teeth, loose sacroiliac joint, or some other one of the almost innumerable conditions of which sacral backache may also be a manifestation. In fact, so many pelvic symptoms are due to extraneous causes that great care must be exercised in order that we may not be led astray by confining our attention to the pelvic organs exclusively.

History taking is facilitated by noting the events in the patient's life in chronological sequence, and it is therefore easier to systematize the facts if they are obtained by cross-examination rather than as a narrative. This course of procedure precludes allowing the patient to "tell her story in her own words," until the "present illness" is reached, when she may be permitted to describe her symptoms. She will then be so impressed by the character of the record that is being made that she will stick to essentials and forego garrulity. Since the details of certain items may be of importance in one case and not in

another, it would be unnecessarily time-consuming to consider the minutiae of every symptom invariably. Natural progression in eliciting the facts will suggest which manifestations of disease require special attention in each instance.

We must not forget that a woman may assume an alias, misstate her age, and distort the truth, and all cases involving questions of sterility, early pregnancy, and venereal infections should be viewed with suspicion. Many stigmata of constitutional disease are now recognized as hereditary or atavistic in origin, and the family history often demands more than passing consideration. Syphilis, tuberculosis, malignant, circulatory, and renal diseases, menstrual disturbances, and derangements of the endocrine system can frequently be attributed in part to the patient's antecedents, and conversely, the history of the patient's immediate relatives may suggest the likelihood of such possibilities. The exanthemata and their sequelae are important because of their tendency to cause perversions of the internal secretions, especially in the ovary, thyroid, and adrenal. The character and behavior of the menstrual function, together with the existence of premenstrual phenomena, are worthy of special attention, for these are often the signal system of the ductless glands and the indicators of pelvic disease. Yet, of what avail is it to ascertain that the patient menstruates for five days, if we do not also determine whether she uses one or five napkins per day? Or of what value is it to know that the patient is apathetic, mentally depressed, and suffers from morning headache for a few days before each period, if these flying flags are not recognized as manifestations of hypothyroidism? Or why ask the patient if she is constipated, which we expect her to be, if we pay no further attention to the fecal impaction in her sigmoid? And incidentally, the promptness with which many pelvic symptoms disappear after a series of oil and soap suds enemas is sometimes astonishing, despite the persistence of a coexisting pelvic abnormality. How many patients who drink one to two glasses of water, or less, each day have been treated for "cystitis," because the physical properties of a freshly catheterized specimen of urine were unnoticed? And how many patients suffering from chronic pyelitis, ureteral stricture, or urogenital tuberculosis have been treated for "cystitis," because the doctor did not own a cystoscope? These few queries have been made at random, simply to exemplify the variety of detail that may have to be considered.

It is presumed that all those who essay the treatment of gynecologic patients are qualified to determine the condition of the pelvic organs, but unless we constantly regard the woman as our problem rather than her pelvis, our field of vision may become so narrowed that we can see nothing north of the umbilicus or south of the intro-

itus. The physical examination must include the pulse and its rhythm, the blood pressure, the condition of the lymph nodes, and every other factor which may enable us to gain a comprehensive knowledge of the patient's peculiarities and ailments.

Having established an exact diagnosis and then convinced ourselves and the patient that an operation is indicated as the sole means of relief and cure, it is imperative that we anticipate possible complications or a disastrous outcome, by availing ourselves of every resource which may enable us to appraise the vital resistance of the prospective operative patient. For, while we may concur with Power and concede that this cannot always be gauged correctly, modern laboratory aids have now provided several methods by which we may accomplish a great deal toward this end, by acquiring considerable information regarding the patient's metabolic capabilities and abnormalities. Supplementing a careful examination of the heart, lungs, and blood pressure, and the usual urinalysis and blood count, special stress should be laid on acetone and diacetic acid in the urine, the alveolar carbon dioxide tension, renal function tests and the urea content of the urine, the urea nitrogen of the blood, the sugar tolerance of the blood, and the carbon dioxide combining power of the blood.

When operations on old and debilitated subjects are contemplated, these patients should be given a generous and nutritious diet, and encouraged to take large quantities of fluids beforehand, while those who also have a high blood pressure should have complete mental and physical rest besides.

Patients with a hemoglobin of 50 per cent or less, or other evidence of a pronounced anemia, should have a preliminary blood transfusion. The technic of transfusion has now been so simplified that there is no longer any excuse for procrastinating until the patient is *in extremis* after operation.

Acidosis may exist without acetone (or diacetic acid) in the urine, and *vice versa*, and both may occur independently of diabetes. Acetonuria has been frequently observed in postoperative convalescence where it did not appear beforehand, following anesthesia. Since acidosis is usually due to fat and carbohydrate catabolism, where it is discovered clinically, it is often found in patients suffering from intestinal disturbances and malnutrition. Acetone is present in normal urine in minute quantities and traces of it may be disregarded, but when it is markedly increased operations are extremely dangerous and should be postponed if possible. This because diminished hematogenous alkalinity and overwhelming acid intoxication may follow anesthesia. Acetone is easily formed from both food and body fats and carbohydrates, and some observers believe from proteins as well. Early acidosis may be accurately diagnosed by determining the car-

bon dioxide tension in the alveoli of the lungs. The correction of both acetoneuria and acidosis demands an increase of alkalies and water.

As a preventive measure, it will be found convenient to prescribe two drachms of sodium bicarbonate to be taken in water half an hour before each meal for three or four days before all operations, whenever feasible, as a matter of routine. All patients are also urged to drink water freely up to within an hour of operation. When acidosis already exists, however, more heroic measures are indicated. A 4 per cent solution of sodium bicarbonate may be given intravenously, or a Murphy drip containing 5 per cent glucose and 2 per cent sodium bicarbonate or potassium acetate in 500 c.c. of sterile water may be given twice a day. The latter is a powerful alkalinizing solution and supplies the patient with a certain amount of nourishment and water. Since Crile has shown that chloroform produces a profound acidosis, ether a less intense acidosis, and gas-oxygen a transitory acidosis, gas-oxygen is usually selected as the anesthetic of choice for operations in the presence of acid intoxication and diabetes.

For many years the urologist has been doing renal function tests and coddling his patients before operation, not because the operations that he performs are especially hazardous, but because such a high percentage of his prospective operative patients are bad surgical risks, on account of the derangements of metabolism and impaired renal function, and should he fail to recognize these abnormal conditions, his mortality would be appalling. Since there is no difference in the biochemical physiologic processes in men and women, why should we be any more negligent in this respect than those whose patients happen to be males? It is quite true that our proportion of poor risks is not apt to be large, but if due care is exercised, many of the bad can be converted into good ones. While renal function tests are utilized chiefly to determine the functional efficiency of the kidneys, they also serve as a reliable index of the patient's metabolic capabilities. The two most in vogue at the present time are indigo-carmin chromo-cystoscopy and phenolsulphonaphthalein. The first mentioned I now make a matter of routine before all elective gynecologic operations, because a synchronous bilateral delay indicates the likelihood of nephritis, and a unilateral delay suggests the presence of some surgical condition of the kidney or ureter, which in reality may be producing the symptoms erroneously attributed to coexisting pelvic pathology. When the indigo-carmin is given intravenously, the technic is simple, subsequent elimination is rapid, and conclusions based upon the behavior of the test are reasonably accurate. The phenolsulphonaphthalein test, being more time-consuming, will be found efficient in making a quantitative estimation of the patient's

process of elimination, especially after a bilateral delayed ejection of indigo-carmines denotes such impairment of function.

It is almost a universal custom to have the patient bring some of the urine voided on arising in the morning for examination, yet of what use is it to learn that a specimen contains 8 grains of urea and 15 grains of total solids to the ounce, if the number of ounces voided in 24 hours is unknown? One patient may pass 20 ounces and another 50 ounces in 24 hours, so that the urine urea content would be 160 grains in the first instance and 400 in the second; truly a remarkable discrepancy. Admitting that a knowledge of the quantity of urea excreted in the urine is of little practical value unless the nitrogenous content of the blood is also known, a diminution of the urine urea below the minimum normal of 300 grains in 24 hours may still serve as the indicator for the necessity of making a complementary examination of the blood. Many of us probably have a misconception of the clinical picture of uremia, because we have been accustomed to observe it so frequently concomitant with nephritis, and no doubt many old ladies have died after hysterectomy of a uremia that passed unrecognized. I have found it a very easy matter to educate my patients to collect the urine for 24 hours and measure the total quantity. The desired information is then forwarded to the pathologist with a 4 ounce specimen, taken from the bulk collected. It is far easier to make an examination of the urine a matter of routine than a chemical analysis of the blood. A decrease of urine urea below the minimum normal may be disregarded unless the nitrogenous elements of the blood are correspondingly increased. Taking 12 to 15 mgm. in 100 c.c. as the normal urea nitrogen content of the blood, it is evident that the prognosis becomes grave in direct proportion to the retention beyond normal limits. An excess of creatinin in the blood is also a discouraging prognostic factor, particularly in nephritis.

When there is an abnormal hematogenous retention of excrementitious products, occurring independently of nephritis or other actual disease, a great deal can be done towards increasing the patient's vital resistance, by restricting the ingestion of proteins and promoting the elimination of nitrogenous elements. The patient can be encouraged to take mental rest, moderate physical exercise outdoors, a warm bath followed by an alcohol sponge twice daily, deep breathing exercises, a daily enema, small doses of sodium phosphate and Kissingen salts, and liberal quantities of water. The diet may be limited to green vegetables, cooked fruits, cottage cheese, and milk or buttermilk. By these measures, in a woman of 64, with an enormous calcareous fibromyoma of the uterus, which was exerting pressure on the iliac veins and causing edema of the legs, I succeeded in increasing the 24 hour

urine urea from 198 to 306 grains, and reducing the urea nitrogen of the blood from 32 to 19.4 mgm. in 100 c.c. of blood, in six weeks.

The sugar tolerance test of the blood, as a diagnostic and prognostic procedure, is still in its infancy, and no positive statements concerning its practical application and significance can be ventured at this time. It is not unlikely, however, that certain principles based upon its behavior will be formulated in the near future. Incidentally, one should be on the alert that a hyperglycemia is not overlooked, for as much as 0.3 gm. has been found without glycosuria.

The normal carbon dioxide combining power of the blood in the adult varies from 75 to 55 per cent. If this falls to 50, an acidosis may be suspected, and if reduced greatly beyond that point a postoperative fatality may be anticipated.

2020 BROADWAY.

Case Reports

REPORT OF A CASE OF LARGE MENINGOCELE PRODUCING DYSTOCIA, DELIVERY BY PORRO OPERATION

BY LINDSAY PETERS, M.D., COLUMBIA, S. C.

OCCIPITAL meningocele as an active obstetric complication is very uncommon and as I am unable to find in medical literature a case of similar proportion, that herewith reported should be worthy of record.

On March 20, 1921, I was called to see Mrs. M. in labor, a para-i, thirty-five years of age. Nothing notable in family history or personal history. Menses began at eighteen years, regular, every twenty-eight days, 4 days, pain in middle of pelvis first two days. Last menstruation, May 15, 1920. No leucorrhea. Married four years. Never previously pregnant. The patient had been free from complications except that at Christmas time she had severe pains in lower part of abdomen, lasting several days. She thought she was about a month overdue at the time of my visit. During the night of March 18, 1921, she went into labor and the membranes ruptured, after which very large quantities of "water" passed from the vagina. The pains, after continuing some hours, subsided. About midnight March 19, 1921, she began to have very severe pains which continued until I saw her for the first time at her home about 4:30 A.M. When I arrived pains had become infrequent and of less severity. I then obtained the foregoing history and noted the following physical findings:

Patient, a broad-framed, well-nourished woman. Heart and lungs normal. The uterine mass appeared to lie uncommonly high in the abdomen, was unusually prominent in the recumbent posture and on palpation was hard, as though the uterine muscles were in tonic contraction. No Bandl's ring felt. Small parts of child were felt at upper pole and the fetal heart heard (144 per minute) to the right and slightly below the level of the umbilicus, but the position of the child was not definitely made out, owing to the rigidity of the uterine wall and the lack of amniotic fluid.

Vaginal outlet nulliparous. Cervix high, external os dilated to 2 cm. in diameter, membranes ruptured. The presenting part, palpated through the partly dilated os, was round and yielding, with a depression in one part. It gave the impression of a marked caput succedaneum, but the skull could not be felt beneath it. As it did not feel like a breech and was too soft for a normal skull, hydrocephalus was suspected.

Pelvic measurements: Interspinous 26 cm.; intercrural 29.5 cm.; bitrochanteric 33 cm.; Baudeloque's diameter 21.5 cm.; bischial 11 cm.; diagonal conjugate 12.5+cm. Unable to reach sacral promontory. True conjugate, estimated 11.5 cm.

At 6:30 A.M. patient was taken to the Baptist Hospital. During the day she had uterine contractions of moderate strength at long intervals, but about 10 P.M. I was called to see her on account of severe pains at five-minute intervals. She continued in active labor all night, but at 5 A.M. vaginal examination showed that there was no descent of the head and the cervical os was dilated only to the

size of a dollar. Patient was now anesthetized with ether, the gloved hand introduced into the vagina and the os dilated manually until the fist passed through it with ease. On introducing the hand into the uterus it was now possible to feel the presenting part to be a very large, round, fluctuant bag, which seemed to confirm the suspicion of hydrocephalus. Accordingly this sac was punctured with sharp, curved scissors and a large quantity (not measured) of perfectly clear fluid, drained out. The collapsed sac then came down into the vagina and reached out through the vulval opening and was seen to be covered with hair. This sac was now grasped with Segond's forceps and strong traction made without effecting any descent of the head. Two attempts were then made to apply Tarnier axis-traction forceps to the unengaged head, but each time the forceps slipped off. Still being under the impression that I was dealing with hydrocephalus and that by puncturing it I had removed the obstacle to delivery, and having in mind the unusually large size of the pelvis as shown by pelvic measurements, I decided to desist from further efforts at artificial delivery, feeling certain that the woman would easily deliver herself on again going into labor. With this idea in mind she was returned to her bed. Strong contractions did not begin again until about 5 P.M. She was then again taken to the delivery room and 0.5 c.c. pituitrin given intramuscularly. This was promptly followed by violent expulsive contractions, which were aided by strong traction on the collapsed sac presenting through the vulva. Notwithstanding this and although terrific efforts were made by the woman to expel the child, the head would not engage at the pelvic inlet. This tempestuous contraction of the uterus continued until about 7 P.M. when labor again almost subsided. At 8 P.M. there being no advance of the presenting part and the woman showing signs of beginning exhaustion, it was decided to terminate labor by artificial means. Fetal movements and heart sounds had been absent since puncture of the presenting sac. In deliberating upon the choice of a method of delivery, vaginal cesarean section, craniotomy and decapitation were rejected on account of the high position of the cervix, the inaccessibility of the head, the apparently large size of the child, the incomplete dilatation of the cervix, the smallness of the vagina and the unusually firm, resistant perineum.

Low-incision, transperitoneal, abdominal hysterotomy was chosen as the most suitable procedure and, on account of the probability of infection due to repeated vaginal examinations and the intrauterine operation which had been necessary, it was deemed advisable to suture peritoneal flaps turned back from the vesical reflection and adjoining lower uterine segment to the edges of the incised parietal peritoneum, thus making the delivery extraperitoneal. Morphine sulphate gr. $\frac{1}{4}$ and atropin sulphate gr. $\frac{1}{150}$, were given by hypodermic at 8:30 P.M. When the anesthetic (ether) was begun about 9 P.M., pituitrin, 0.5 c.c. and ergotol, 20 minims, were given intramuscularly. The vagina and cervix were thoroughly swabbed with iodine.

Operation was begun about 9:30 P.M., March 21. Median incision from symphysis pubis upward about 11 cm. Emptying the bladder before operation was overlooked and this organ, extending high above the symphysis, was accidentally opened by a minute incision and immediately closed by a double row of continuous catgut sutures. On opening the peritoneal cavity in Trendelenburg posture, the bladder could be easily held out of the way with a large retractor, exposing the anterior surface of the uterus. The vesicouterine reflection of peritoneum was incised transversely and folded upward and downward, so as to form upper and lower peritoneal flaps, beneath which lay the denuded anterior surface of the uterus. After separating the bladder from the upper portion of the cervix these peritoneal flaps were sewn to the edges of the incision

in the parietal peritoneum, in this way shutting off the peritoneal cavity from the field of operation. A vertical incision was now made through the anterior surface of the cervix and lower uterine segment and when the incision opened the uterine cavity there was an escape of gas and yellow meconium, resembling the feces of an infant some days after birth. This was sponged away and the incision extended to the desired length, thus bringing into view the head of the dead infant, lying in right occipitoposterior position, whose scalp was seized with Segond's forceps and a head, the skull of which was now for the first time found to be of normal size, was easily delivered, followed by the large collapsed sac which was now seen to be, not a hydrocephalus, but a meningocele springing from the occiput and nape of the neck. The rest of the fetus was then delivered without difficulty. The placenta was easily detached and delivered and up to this point there had scarcely been any bleeding, but the uterus remained flaccid notwithstanding the oxytocics given hypodermatically just before operation and irritation of the uterus by rubbing its inner surface with a towel. Suddenly there was a gush of blood from the uterine cavity, which was not controlled by packing the uterus with a soft towel, hence the line of union of visceral peritoneal flaps and



Fig 1.—Drawing after photograph showing meningocele sac filled.

parietal peritoneum was quickly torn through and the body of the uterus brought up through the abdominal incision and a strong rubber tourniquet thrown around it as low down as possible. Clamps were applied to the broad ligaments and a supravaginal hysterectomy was done in the usual manner. An iodoform gauze drain was pushed down through the dilated cervix, the upper portion of the drain covering the raw surface of the amputated cervix. After uniting the parietal peritoneum by continuous catgut suture the remaining layers of the wound were brought together by through and through, interrupted silkworm gut sutures.

A selfretaining catheter was placed in the bladder and the patient then returned to her bed with a pulse rapid, but of fairly good volume. After the frightful hemorrhage she had become pulseless, but by prompt transfusion with salt solution her condition was improved.

About two hours after operation the patient became conscious and the next morning she asked for food. There was no nausea. She showed marked anemia and her pulse and respiration were rapid, but there was no special discomfort until the evening, when she first mentioned a pain in the lower part of the left side of the chest in front.

During convalescence there were signs of pneumonia of very short duration

and suppuration of the wound with separation of its edges in the upper two thirds. This was promptly cleaned up by the use of Dakin's solution and dichloramine. By the twenty-seventh day the wound had sufficiently closed by granulation to permit the patient to get up in a rolling chair and two weeks later, at her request, she was discharged from the hospital and continued to have the wound dressed at my office. Before the wound had healed the scar and granulating tissue were excised and the wound resutured, resulting in good firm union and linear scar.

Unfortunately the infant was not weighed and no measurements were taken. It was a male and appeared to be of about the average size of a full term child.

The meningocele was not pediculated, but was attached by a broad base over the occiput and the back of the neck. On splitting its sac down to the skull its cavity was found to communicate with the cranial cavity through an elliptical opening in the midline of the occipital bone, having its lower extremity about 1.5 cm. above the foramen magnum and measuring 3 x 2 cm. Through this opening the cerebellum was visible. There was no spina bifida or other deformity than the meningocele, except a flattening or depression of the occipital bone due to pressure of the fluid in the tumor.

Before splitting the meningocele sac the rents and punctures in it were closed by ligation and its cavity filled with water in order to determine its capacity, which was found to be two liters. Some idea of the proportions of the tumor is obtained from Fig. 1.

After searching the literature easily available, including the files of the *Journal of the American Medical Association* and the *American Journal of Obstetrics* back to 1900, I find only one other reported¹ in which the size of the meningocele approaches that of my case: The tumor in that instance, judging from the illustration accompanying the report and from the fact that it permitted an uncomplicated birth of the child, must have been of smaller size than the one described in the present report.

In an article on the "Course of Delivery with Occipital and Dorsal Meningoceles," abstracted in the *Journal of the American Medical Association*, 1913, lxi, 1755, from *Beiträge zur Geburtshilfe und Gynäkologie*, 1913, xvii, No. 3, 307-446, Kroner reviews eighteen cases; in ten there had been deflexion presentation and this group he summarizes in detail. The data show that occipital meningoceles frequently entail frontal or face presentation; sometimes a transverse face rotates around the symphysis. With a meningocele at the back of the neck, presentation generally occurs as a deflexion presentation; delivery can occur only by a change to occipital presentation.

Certain Italian observers have found evidences of parental syphilis almost invariably in carefully investigated cases of congenital hydrocephalus. Having this in mind, a Wassermann test was made on the blood of the mother in our case, with a negative result.

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1211 GERVAIS STREET

LATERAL PARTIAL GLANDULAR HERMAPHRODITISM

By J. F. BALDWIN, M.D., F.A.C.S., COLUMBUS, OHIO

IN THE May, 1921, issue of the AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY, Dr. Charles W. Moots, of Toledo, reports a very interesting case under the above caption. The rarity of these cases justifies the report of each one, and for that reason I report my case, particularly as the time which has elapsed since my operation adds an important feature. The unfortunate death of Dr. Moots' patient so soon after her recovery renders the final result somewhat uncertain, though apparently a complete transformation, as in my case, would have taken place in due time.

Miss X., aged thirty, consulted me October 25, 1904. General health excellent. Had never menstruated. Appetite good, bowels regular, kidneys normal. Patient stated that she had no vagina, and that there was a peculiar fleshy growth connected with the vulva. Since puberty she had had a coarse voice and had developed a good deal of hair over the body and face. All her habits and inclinations were strictly feminine. There was a pretty clear history of a menstrual molimen. She had never been examined by a physician. Patient a brunette with a semi-masculine voice. She was slightly below the average in height, but was plump, with hands short and thick like her body. Marked growth of hair over the entire surface, with a heavy development on the pubes, but feminine in distribution. Breasts well developed but rather smaller than would be expected in a woman of her build. There was a greatly enlarged clitoris, this being an inch and a half long, and terminating in a typical glans with a well developed foreskin. Underneath the clitoris I finally located a small opening which would just admit the tip of the finger. Under an anesthetic I introduced the finger, and then found a normal vagina with an infantile uterus. The perineum had simply grown forward so as to practically close the vaginal inlet.

The case seemed to be one of mixed sex elements, but with a predominance of the female. I advised a plastic operation on the perineum to open the vagina, removal of the hypertrophied clitoris, and an abdominal operation to correct any pelvic pathology which might be present.

The abdomen was opened first, the incision going through about two inches of fat. An infantile uterus was found, on the left of which was a normal tube and ovary; no corpus luteum but several cysts. On the right side the tube was smaller, and here there was present a nearly globular body suggesting a testicle rather than an ovary. This body was removed. Appendix removed. Gall bladder normal. Incision closed as usual.

Patient was then placed in the lithotomy position and the enlarged clitoris amputated in the usual way. The perineum was split back the proper distance, some tissue resected, and the mucous membrane and skin brought together so as to make a practically normal opening. The hymen was normal except as it had been torn by the previous examination. Urethra normal.

The patient made an ideal convalescence and was married a few months later. I have seen her repeatedly since that time, and she assures me that she is "the happiest woman in Ohio." She has adopted several children, so that she has a family. Her voice and general appearance have so changed that nothing abnormal would now be noticed.

The pathologist reported that the suspected tissue was a testicle, and it was its presence that was doubtless responsible for the male elements which had been present in her case.

In 1904 we had heard very little of the functions of what we now know more about as the endocrine glands, but the following case is of interest in connection with the one reported above:

Miss H., aged fifteen, a school girl, September 26, 1904, was brought in by her physician and parents. Previous to her present illness she had been a sweet pleasant girl, the baby of the family. Was slender in figure, weighing about 100 pounds. Had menstruated twice, nine months and eight months before the consultation. The flow had lasted but a single day and was very slight, probably not more than a teaspoonful. No symptoms preceded these two periods, and at the succeeding months there was no menses. Four months before my consultation it was noticed that her voice became coarse like that of a developing boy. A month later acne developed on the face, and also a growth of hair over the face and body, most noticeable on face, arms, back and shoulders. With this there occurred a marked change in her disposition. She had previously enjoyed being with girls and had never cared for boys, but with this change she wanted to be by herself and was peevish and irritable. On examination I found her a plump girl, weighing about 140 pounds. The hair on her face was like that of a boy of her age, and the same condition as to the hair on her body and extremities. The breasts moderately developed but not as large as would be expected in a girl of her weight. Voice like that of an adolescent boy. Examination showed normal development of hair on the genitals; the major lips well marked, the lesser lips slightly marked; clitoris greatly enlarged as in the previous case, the glans well marked and fissured so as to resemble closely a urinary meatus; the whole organ very suggestive of a penis; urethra normal; normal hymen; the vagina seemed smoother than usual but of normal length; could make out a small cervix, but because of the tenderness could make out nothing more.

There was no improvement in her condition and on November 5, largely because of the findings in the previous case, I operated. The clitoris was amputated in the usual way. There was an infantile uterus as expected. Fallopian tubes normal. The ovaries were represented, however, by masses about the size of the last joint of the little finger. No evidence of any follicles in the tissue of these glands. Both of these masses were removed, and on section seemed testicular, but I have no report from the microscopist as to his findings.

Patient made an excellent operative recovery. September 27, 1905, her physician reported that she was no better; was very fat, weighing about 250 pounds, and perfectly helpless; he had been giving her thyroid extract but without benefit.

October 13, 1905, her physician reported that she had died that day of typhoid fever. Autopsy refused.

115 SOUTH GRANT AVENUE.

REPORT OF A CASE OF INTERSTITIAL PREGNANCY

BY K. SELLERS KENNARD, M.D., AND R. EMMET WALSH, M.D.,
NEW YORK CITY

THE case here reported occurred on the First Surgical Division of Fordham Hospital, New York, from whom permission to publish the clinical and surgical aspects was obtained and to whom acknowledgment is given.

CASE REPORT.—Mrs. K. W., age thirty-eight, German, housewife, admitted to Fordham Hospital, Nov. 7, 1920.

Chief Complaint.—Pain all over abdomen and extreme weakness.

Family History.—Father died at fifty-four of acute pulmonary tuberculosis. Mother at sixty-seven, cause unknown. Four sisters alive and well. History of pelvic trouble in female side of family: one sister had two successive miscarriages without any subsequent fecundation. Another sister had a double oophorectomy.

Menstrual History.—Began at fourteenth year, regular twenty-eight day type, moderate in amount and of 5 days' duration, dysmenorrhea always present, accompanied by headache, vomiting, etc. Last period Sept. 26, 1920.

Marital History.—Married the first time in 1903. She did not become pregnant during first seven years of her married life though no effort was made to prevent conception. In 1912, two years after an operation for retroflexion, she became pregnant and was delivered at term of a girl baby, breech presentation. Her husband died in 1914 and patient remarried in 1917. She became pregnant for the second time in September, 1920.

Habits.—Appetite, good. Bowels, somewhat constipated. Urination, no dysuria, nocturia, oliguria or polyuria. Venereal, denied by name and symptoms. Drugs, denied.

Present Illness.—Patient was perfectly well until Nov. 6, 1920 when she experienced sudden sharp pains in her lower left abdominal quadrant. She became pale and hurried home from her shopping tour. She took a drink of hot, black coffee and felt relieved after an hour or two. She did not faint or notice any spotting. That same evening she felt well enough to go to the theatre and the following morning felt well on awakening. Ten minutes later she was suddenly attacked with sharp, knife-like pains in the lower left abdominal quadrant. These pains grew worse and "radiated up to her heart." She looked deathly pale and vomited greenish fluid several times. Her doctor, arriving two hours later, found her in deep shock and administered morphine gr. $\frac{1}{4}$ and whiskey and coffee enemata, and adrenalin hypodermatically.

Physical Examination:—General appearance that of internal hemorrhage, eyes react equally to light and accommodation, heart and lungs normal, pulse rapid, regular and feeble. Liver, kidneys and spleen not palpable. Rigidity and tenderness present throughout abdomen. Extremities normal. Reflexes normal. On admission T. 96°, P. 130, R. 28.

Preoperative diagnosis, ruptured uterus.

Operation.—Nov. 7, 1920 by Dr. Walsh. Open ether narcosis. Low median incision. Peritoneal cavity filled with recent blood. Fetus of three months' size found immediately beneath peritoneal opening with umbilical cord leading down to a wound in the summit of the uterus midway between the fundus and the left cornu.

Digital examination disclosed a cavity the size of a large walnut containing placental remains still attached to the umbilical cord. Placenta and fetus removed and the wound in the uterus closed in two layers with plain gut No. 2. Tube drain from site of uterine laceration. Abdomen closed in layers in the usual manner, plain gut throughout.

During the progress of the operation an intravenous injection of saline (500 c.c.) was given with apparently very good result. Patient returned to ward, pulse 96, respirations 32, at 4:30 P.M. Died at 9:55 P.M., Nov. 7, 1920.

Autopsy performed November the eighth, at 10:20 A.M. Peritoneal cavity contains a quantity of clotted blood. Other than a general paleness of the organs, unilateral dilatation of the uterus was the only feature of note presented by gross examination of the pelvic organs.

The vagina was normal in all respects, and no old or recent injuries were present. Examination of the uterus shows that there is a dilatation of the left cornu, involving principally the posterior wall, and that the outer wall of this protruding area is considerably thinner than the normal uterine muscle wall. Measurement of the organ shows its greatest length four and three quarter inches, greatest transverse diameter three and three-quarters inches. The protruding area occupying the



Fig. 1.—Composite diagram made from several photographs, showing uterus with site of rupture and size of fetus.

left cornu proves to be a sac unconnected with the uterine cavity and formed out of the muscle wall of the fundus of the uterus. The left fallopian tube appears to be inserted into the sac, about the middle of its lower portion, though a probe passed into the lumen of the tube does not enter either the cavity of the sac or the cavity of the uterus, but impinges against an obstruction, apparently muscle tissue. No definite *pars uterina* of the tube can be made out, and if the sac had its origin in this part of the tube the relations of such are no longer appreciable. The extrauterine portion of the tube is normal in size, relation and appearance. The muscle wall of the fundus of the uterus appears to be the portion of the organ out of which the sac was formed.

With the parts in apposition, the sac measures four inches in its longest dimensions, making some allowance for twelve hours' fixation in five per cent formalin. Its appearance was as if the uterine wall had been split into two layers, one forming the outer and the other the inner wall of the sac. The internal appearance of the cavity of the sac shows the muscle trabeculated and resembles the interior of the cavity of the heart. Numerous blood clots were attached to the wall and entangled in the drawn out muscle bundles.

The rupture had taken place posteriorly. It was irregular in outline, with

ragged edges and measured two inches in length. The tissue about the edge of the tear, both externally and internally, was deep purple in color. While the placenta had been removed at operation, it is most probable that the area of discoloration on the inner surface of the sac, about the tear, marked its location, and the wall of the sac was distinctly thinner at this point than elsewhere. The greater dilatation of the sac lies toward the midline of the uterus, and probably accommodated the head of the fetus, as is shown in the plate. As stated, there was no communication between the sac and the uterine cavity. The internal os was tightly closed; the cervical canal of normal caliber and the external os admitted the end of the little finger.

The left ovary contained a body which measured three-quarters of an inch in diameter, and was composed of two zones; an outer, grayish-white in color, measuring a quarter of an inch in width and the periphery of which, in one locality, contained a small clot of blood; the inner, formed by a cavity cup-shaped in character, one-half an inch in diameter, contained a viscid, clear fluid and was lined with a white, glistening membrane. The right ovary contained a number of unripe graafian follicles. The peritoncum covering the internal genitalia was normal in appearance.

The endometrium was greatly swollen, had undergone hyperplasia and was hemorrhagic in appearance. Numerous blood clots, and strands of tissue presenting a membrane-like arrangement, were present on the surface of the mucosa. Scrapings from this locality were examined microscopically, and found to consist of blood, desquamated epithelium and characteristic decidual cells, large in size and plentiful in quantity. No chorionic villi were present. Scrapings from the wall of the sac were fixed by heat upon a slide and stained with hematoxylin and eosin. Large epithelioid-like decidual cells in great numbers were present, as were chorionic villi, blood cells and strands of fibrin. The uterine wall is normal in appearance, no marks of instrumentation were found anywhere in the genital tract. A section of the uterine wall removed for microscopic examination showed nothing abnormal. Increase in size of the muscle fibers and mitosis of the nuclei, changes incident to pregnancy, were present, but nothing that could be construed as a pathologic process could be observed by microscopic examination.

The fetus, a male, presented no abnormalities of development and, from its measurements, was in the twelfth or fourteenth week of gestation.

1932 ARTHUR AVENUE.

FURTHER EXPERIENCES WITH A NEW METHOD (ASPIRATION AND PRESSURE) OF TREATING MAMMARY ABSCESES. AN ILLUSTRATIVE CASE

BY JOHN PATERSON GARDINER, M.D., F.A.C.S., TOLEDO, OHIO

SINCE my first report* on this new method of treating unopened mammary abscesses, further experience has confirmed the results given at that time and moreover the method has proved equally as successful in the treatment of opened as of unopened breast abscesses.

The technic as previously described is simple. The lymphangitis of the breast is combated by pressure, thus preventing an extension of the infection and causing a localization of the process. When localization has occurred, the pus is aspirated and the pressure reapplied. The second aspiration follows in from four

*Am. Jour. Obst. and Dis. Women and Children, 1919, lxxx, No. 5, pp. 506-523.

to six hours and the amount of pus obtained at this time determines the frequency of the succeeding aspirations. After each aspiration the pressure is immediately applied.

The improved method of applying the pressure consists of placing over the entire breast a few layers of sterile gauze, the breast is covered by a sterile towel folded four ply, a clean deflated basket-ball bladder is spread on top over the breast and is held in position by a three inch roller bandage. To minimize the discomfort, the bladder should be inflated by degrees up to the desired pressure. Sufficient inflation can be readily accomplished by blowing in the tube of the bladder, the end of which is covered with a piece of sterile gauze. The pressure is later adjusted to suit the needs in the case.

Nursing from the affected breast may begin four or five days after a dry tap in those breasts in which lactation is just beginning, but in those of the late lactation period nursing is interdicted as the milk supply is already insufficient. The pressure is continued for two or three days after a dry tap.

The method of treatment is as satisfactory in opened as in unopened mammary abscesses. The following illustrative case is cited because the breast had the appearance of requiring through and through drainage as the only method which would satisfy the surgical requirements, but with the aspiration and pressure treatment, without an operation and with no scar there was a complete recovery in four days.

Mrs. B. had nursed her child for six months. The nipple was sore, fissured, and bled on nursing for several days before a red tender lump was noticed in the outer, upper quadrant of the right breast. The mass increased, a poultice was applied, and the breast was lanced. When I saw the patient, the temperature was 103° F. and the breast was dark red and swollen to twice the size of the opposite breast. Pressure as above described and heat were applied. During the night there was a little discharge and the swelling was greatly reduced. The outer and lower regions of the breast were indurated but no fluctuation was felt. The needle of a syringe containing one-half per cent novocain solution was inserted into the original incision and the contents injected deeply into the breast. The needle was withdrawn and a larger needle was inserted to which a syringe was attached and 100 c.c. of pus was withdrawn. The pressure was applied according to the technic described. In four days after the breast was first seen there was a dry tap and recovery was complete.

This treatment of mammary abscesses is efficient and simple. There is no scarring and the patient need not be confined to bed. The success of the treatment depends upon keeping the surface area of the pathologic tissue limited to a minimum by emptying the cavity of pus frequently and by the continued pressure preventing the water logging of the tissue cells.

COLTON BUILDING.

RECURRENT ABDOMINAL PREGNANCY

By W. H. CONDIT, B.S., M.D., F.A.C.S., MINNEAPOLIS, MINN.

*From Department of Obstetrics and Gynecology, Medical School,
University of Minnesota*

MRS. R. T., age 27, admitted to the hospital April 8, 1920, with diagnosis of acute appendicitis complicating a six months' pregnancy. Last menstruation October 28, 1919. Patient first noticed pain in her left side in December, 1919, and was in bed until February 9, 1920, when she was told by the attending

physician that she had inflammation of the uterus. Pain at that time was very severe. Patient was unable to lie on left side, lost weight and strength rapidly. Lower abdomen was very tender and upon getting about again, she gained weight and strength quite rapidly, but the dull, aching pain persisted in the left lower abdomen.



Fig. 1.—Anterior view of fetus from first abdominal pregnancy.

April third, pain was more severe on the right side and at this time on consultation, the diagnosis of appendicitis was made. Pain on the right side was steady, dull in character, not affected by the ingestion of food or by position, was worse at night, but did not interfere much with her sleep.

Patient married six years ago and lived with first husband two years. Two years later (1918) she married again. The patient had two miscarriages by the



Fig. 2.—Fetus from second abdominal pregnancy, in the same patient fourteen months later.

second husband, both two months' gestation. Patient always had regular twenty-eight day menstruations since the beginning at the age of thirteen. No dysmenorrhea, no amenorrhea, except during pregnancy. Her maximum weight was 125 pounds, at present 114 pounds. Her blood pressure was 130, over 70. All other functions and organs normal.

Blood examination shows hemoglobin 58 per cent; leucocytosis 13,280; polynuclears 84 per cent; Wassermann negative. Vaginal examination negative for any infection.

The x-ray examination revealed a clearly defined fetus of at least six months' gestation. The cervix was soft, admitted one finger and posterior to the cervix was a mass which filled the whole pelvis. To the right of this was a smaller mass about the size of a slightly enlarged uterus, which was diagnosed as an appendiceal abscess. It was finally decided that this was the fundus of the uterus and that we had an abdominal pregnancy to deal with. Fetal heart sounds were heard in the right lower quadrant.

The patient was treated expectantly, confined to bed for one week. On the last day she no longer felt fetal movements, which up to this time were very perceptible. We could no longer hear the fetal heart. She was allowed to gradually get about and finally dismissed from the hospital with instructions to lead a sedentary life and report immediately on occurrence of any acute abdominal pain or show of blood from the vagina.

On May 25, 1920, patient came to my office with a show of blood from the vagina but no symptoms of any severe hemorrhage, or of any intraabdominal bleeding. She remarked that she was ready for operation, as she was becoming tired of her constant abdominal distress. Operation, May 25, 1920, midline incision, anticipated finding an abdominal pregnancy, uterus crowded under right side of symphysis pubis, and the macerated fetus, (Fig. 1) was still in the amniotic sac. The amniotic fluid was of a greenish yellow color. The fetus was removed and an unusually large placenta for the age of conception was found attached deep in the pelvis and extending over the left side nearly to the crest of the ilium. Any attempt to loosen the placental tissue was accompanied by profuse bleeding, as no attempt by nature had yet been made toward degeneration of the attachment even though the fetus had been dead four or five weeks. I stitched the peritoneum to the border of the amniotic attachment to the placenta, thus walling off the upper peritoneal cavity, leaving a drainage opening the size of my fist. The placenta gradually sloughed out and at the dressings, reminded one of a miniature volcanic crater, throwing off steam and debris, as the process of fermentation produced gases that seemed much warmer than body temperature.

After four weeks, the pelvis was cleared up and the patient made a rapid recovery without a rise of temperature of more than one degree above normal. She regained her normal weight, and went about her usual duties since the eighth week following the operation. There is, as yet, no evidence of any weakness in the area of the wound where the drainage was instituted and the uterus has resumed its normal position. Needless to say, the left tube and ovary were destroyed in the development of the fetus and the pregnancy was doubtless primarily tuboovarian.

The interesting features of the case are: Absence of severe pain in the left adnexal region, it being more marked on the right; also, absence of any hemorrhage from the uterus during the progress of development in the tube, or any symptoms of any interabdominal hemorrhage.

Patient returned to work ten weeks following the operation and continued to attend to her regular duties in excellent health up to the first of May, 1921, when she began to suffer from nausea, abdominal distress, and inability to take food other than bread and milk.

She had a menstruation the first week in May, no menstruation in June and flowed for two weeks in July. She consulted me for this abdominal distress and the loss in weight. Patient at this time denied any possibility of a pregnancy,

so our attention was directed to the abdomen, fearing some intestinal obstruction due to the adhesions attending the previous operation.

Fluoroscopic examination shows a rather dilated cecum, but no evidence of any obstruction. Her blood picture at this time showed hemoglobin 78 per cent; red cells 4,000,000; leucocytes 11,200; polynuclears 83 per cent.

The day following the fluoroscopic examination, the patient admitted the possibility of a pregnancy and on pelvic examination, a large cystic mass was found filling the whole pelvis, very tender on palpation, the uterus in anterior position size of a three months' pregnancy.

Diagnosis made of a possible abdominal pregnancy. She was operated the thirtieth of July and a three and one-half months' fetus was found intact in its membranes (Fig. 2). Cutting into the old scar, in which was a ventral hernia the size of an English walnut, we opened a cavity filled with old blood, walled off from the general peritoneal cavity. There was a marked separation of the placenta and upon relief of the pressure in this cavity, free hemorrhage occurred immediately. The amniotic sac was then opened and the fetus delivered, together with the part of the placenta that was separated. The placenta was attached to the parietal peritoneum on the left side and spread over a surface much larger than one would expect at this period of gestation in the uterus. Hemorrhage was most severe and the cavity was packed with a five yard roll of gauze. On the third day this packing was removed and no further hemorrhage resulted.

The patient at the present writing (eight days postoperative) is convalescing perfectly, with free bowel function and eating well. The condition of the organs in the abdomen was such that it was impossible to determine without dissection and severe hemorrhage, whether either fallopian tube was functioning. The right tube was in evidence but involved in the wall of the tumor.

Patient made a complete recovery.

NICOLLET CLINIC.

Society Transactions

AMERICAN GYNECOLOGICAL SOCIETY. FORTY-SIXTH
ANNUAL MEETING HELD IN SWAMPSCOTT,
MASS., JUNE 2, 3, AND 4, 1921

(Continued from November issue.)

DR. SIDNEY A. CHALFANT, of Pittsburgh, read a paper entitled **Torsion of the Cecum, with Review of the Literature and Report of a Case.** (For original article see page 597.)

DISCUSSION

DR. EDWARD A. SCHUMANN, PHILADELPHIA.—In order to save time, I will not touch on the very interesting clinical aspects of this condition, but direct attention very briefly to some of the causative factors underlying its production. I believe that in these extreme mobilities of the upper colon there is always an arrest of development. In the first two months of intrauterine life there is present a funnel-shaped cecum and unrotated funnel-shaped openings. In cases in which the colon remains unrotated and mobile, there results an arrest of development of the gut in adult life. In the great bulk of cases, with marked mobility and failure of rotation of the colon, there is associated, on careful examination of the patient, some other evidence of arrest of development. In Dr. Chalfant's case there was present a mammalian bicornate uterus; in other cases there are noted characteristic mammalian teeth. These patients apparently then have certain atavistic tendencies. Other causative factors are well-known changes in the mesentery involved in the assumption of the upright position on the part of man. We also know that in the assumption of the upright position the mesentery, particularly the mesocolon, is compelled to support the weight of the descending colon, and in many cases the development of increased connective tissue and elastic tissue in the mesentery has not kept pace with the weight of the colon. I believe that is the chief cause of the frequent condition of ptosis and large, heavy bowel. Microscopic sections of a number of autopsy specimens of people dying of intercurrent diseases, who had ptosis of the colon, showed this distribution of the elastic and connective tissue of the mesentery. A contrast of this with the mesenteries of quadruped mammals, furnishes an interesting picture. There the mesentery has no connective tissue as it does not need it; there is no weight upon it.

DR. HAROLD C. BAILEY, of New York, read a paper written in collaboration with DR. HALSEY J. BAGG on **Vulval and Vaginal Cancer Treated by Filtered and Unfiltered Radium Emanation.** (For original article see page 587.)

DISCUSSION

DR. FREDERICK J. TAUSSIG, ST. LOUIS.—I think the work Dr. Janeway and Dr. Bailey have done in the use of emanations in these cases is valuable. So far as the treatment of vaginal cases is concerned, I quite agree with this method. I think, however, when it comes to vulval cases we must again analyze in what way radium is to displace surgery. Vulvar cases are more general in their indications

than breast cancers because they metastasize early in the disease and accessibility to the primary lesion without surgery in the main is to be preferred. One group, however, I believe should be handled by radium, that group in which we have either cancer of the urethra or cancer of the clitoris close to the urethra, and in order to accomplish surgical excision it is necessary to remove a portion of the urethra. Anyone who has handled some of these cases for years afterward and replaces the function of the lost urethra knows the patient had better take her chances with radium than with surgical excision of the growth, because in radium treatment the function of the urethra is usually not lost. However, in all cases where the lesion is well away from the urethra, where surgical excision can be made widely, it is preferable to adopt it rather than radium. However, radium should be used in addition. It should be used before the excision to prevent implantation metastases, or as a prophylactic measure over the glandular region.

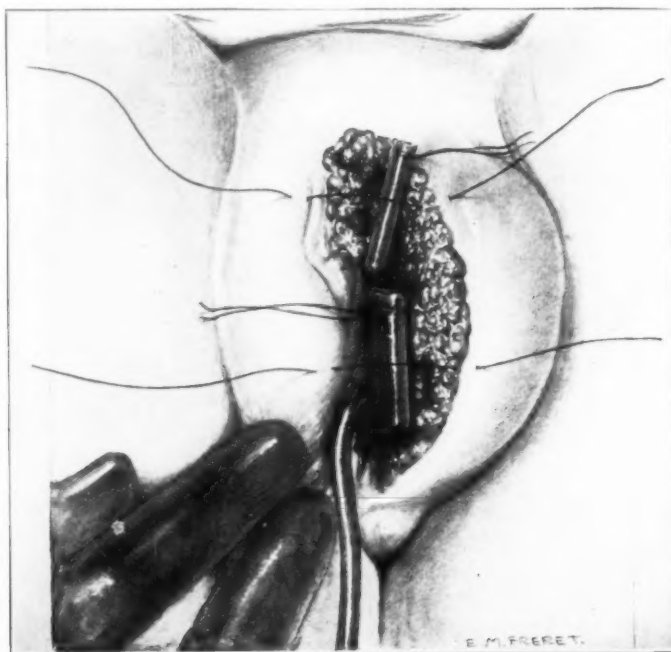


Fig. 1.—Dr. Ward's case of carcinoma of the vulva showing method of applying the radium tubes.

DR. GEORGE GRAY WARD, JR., NEW YORK CITY.—I show here some illustrations of a case of carcinoma of the vulva that occurred in our service at the Woman's Hospital as illustrating the effect of radium and the method I used in employing this aid. The tubes screened with brass and rubber were placed *in situ* (as shown in Fig. 1) with sutures, a catheter being introduced into the bladder previously to permit urination to go on.

While the radium destroyed the disease locally, she survived only about six months, dying from metastases.

DR. FLOYD E. KEENE, PHILADELPHIA.—I have recently had occasion to follow up the cases of carcinoma that were treated by radium in Dr. Clark's service at the University Hospital. Of a total of 313 we have had 19 malignant cases involving vulva or vagina, not including 6 cases of carcinoma of the urethra. Of these 19 cases, 2 were chorioepitheliomata. The other 17 were cases of carcinoma of the vulva or of the vagina. The cases of chorioepitheliomata were radiated and are

alive and well between five and six years after the application of the radium. Of the cases of carcinoma or epithelioma of the vulva or vagina that are living, we have had four. Of that number, one is alive and apparently well. One is alive two and a half years afterward, one, one and a half years afterward, the third about three years afterward, and the fourth, four to five years afterward.

Among the fatal cases, of which there are thirteen, three had rectovaginal fistula. We have not had access to the large amounts of radium, such as Dr. Bailey has used, and our work has been limited to 100 milligrams of radium element, applying the radium in capsules or implanting it into the growth by means of needles. It is very essential for one to use extreme care in treating carcinoma of the rectovaginal septum. First, because of the immediate symptoms which may result, such as a proctitis or cystitis, and secondly, because of the danger of fistula incident to the destructive action of radium. Of the 17 cases of epithelioma of the vulva or vagina, we have had 3 fistulae. In 313 cases I followed up, including all cancers, we have had 31 fistulae. The incidence of fistula following upon radiation of epithelioma of the vagina is greater than that in carcinoma of the cervix or of carcinoma situated in other parts of the pelvis.

I should like to ask Dr. Bailey his opinion regarding primary excision of cancer, as well as the glands, with subsequent radiation.

DR. HAROLD C. BAILEY, (closing).—My views are quite in accord with those of Dr. Taussig in regard to urethral cancer. In one case the treatment is detailed. The woman had a carcinoma of the urethra, with an ulcer about one centimeter in diameter and splitting the meatus. She had also glands in the groin that were involved. That ulcer disappeared without any discomfort to the patient, and without any urinary trouble whatever, with the application of 8 tubes of nearly a millicurie each. Five months afterwards, as a prophylactic measure, the tubes surrounding this area were embedded two-tenths of a centimeter apart. The glands in the groin became larger and were then dissected out and tubes embedded in the area a centimeter apart, and at that time, which was nearly a year after treatment, further radiation was put in the nodular mass, which was one centimeter from the meatus. That patient then apparently was quite well. She was shown at a conference several months later and disappeared for five months. She again appeared the first time with the original lesion in full active sway. It is a rather interesting case.

As regards the use of tubes where only a small amount of radium is obtainable, I think the method brought forth by Dr. Ward is very ingenious, and we are in the habit of using radium laid directly against the lesion. We have never seen anything approaching a cure.

As regards the question of removing the local lesion by surgery rather than by radium, the point we wish to bring out in this paper is, that it can be readily done so far as we can see without any loss of tissue and without any sloughing. There is secondary contraction of the tissues coming on some eight or nine months later, but there is no loss of tissue and no sloughing. The only time when sloughing occurs is where a case is re-treated and tubes are embedded in the area in which the radium was previously placed.

DR. HENRY T. BYFORD, of Chicago, read a paper on **The Cure of Cystic Cervical Endometritis by the Aid of Multiple Scarifications.** (The following is the author's abstract. Paper published in full in the Society's Transactions for the current year.)

Cystic degeneration of the cervix is curable only by a destruction of the degenerated glandular tissue. When it is limited to a small part or parts of the

vaginal portion the desideratum is to destroy only the cysts and degenerating glands. Cutting operations and cauterization destroy too much functioning mucous membrane, while the ordinary local treatment consisting of puncture of follicles as they develop and the application of the tincture of iodine is seldom curative. The author employs a modification of this local treatment that makes it curative. Instead of using the ordinary lance pointed uterine scarificator only upon cysts as they become apparent, he uses a bayonet pointed one and makes from fifty to a hundred punctures into the diseased area or areas from once to twice a week and makes an application of iodized phenol strong enough to destroy or cause atrophy of what remains of the epithelial cells in glands that are already seriously damaged by the inflammatory action, but not strong enough as used to destroy functioning glands. The application consists of one part each of iodine crystals and glycerin and two parts of phenol. A few treatments are made twice weekly, then once weekly until the surface looks and feels normal. After a few months the patient reports for examination and possible treatment of cystic follicles that had not been reached.

"In conclusion, I wish to repeat that I am not advocating such treatment as a substitute for trachelorrhaphy or trachelotomy, but as an alternative in cases in which such operations are not available or advisable. It is the treatment of choice only in cases in which there is moderate cyst formation or in cystic degeneration confined to a limited area. My object is not so much to extend the field of local treatment as to increase its efficiency when it is employed."

DR. ROBERT L. DICKINSON, of New York, read a paper on **Endocervicitis and Eversion and the Nasal Cautery Tip**. (For original article see page 600.)

DR. REGINALD M. RAWLS, of New York, read a paper entitled **End Results of Amputation of the Cervix and Trachelorrhaphy**. (This paper will appear in the January issue.)

DISCUSSION ON THE PAPERS OF DRS. HENRY T. BYFORD, ROBERT L. DICKINSON AND REGINALD M. RAWLS

DR. ARTHUR H. CURTIS, CHICAGO.—I am impressed with the fact that we are still rather inclined to operate and to treat cervixes entirely too much. I can see no reason why we should treat the cervix unless there be some very definite indications. What are those indications? First, there is cancer or impending cancer of the uterus. I say impending cancer with the understanding that you will all appreciate what that means, without further discussion. Second, sterility. Until we know more about other conditions which cause sterility, such, for instance, as patency of the tubes, gonorrheal infection in the husband, and other factors, I believe we should not under any circumstances attempt any reparative or plastic work upon the cervix for the relief of this condition. It is my belief that if sterility is due to disease of the cervix, it is ordinarily an instance in which we have a very marked infection with leucorrheal discharge. So finally we come to another possible indication for the treatment of the cervix, and that is the leucorrheal discharge, either because it is an infectious process or because the leucorrheal discharge annoys the patient and requires treatment. Further, I believe focal infection of the cervix is an important indication for treatment, but focal infection of the cervix hardly ever occurs unless there is also a leucorrheal discharge.

What is the pathology of cervical disease? There are two important types. First, there is that type of pathology associated with pregnancy. As a result of bearing children, there is edema, eversion, laceration, and torn cervical lips, oftentimes associated with the formation of cysts, and sometimes with discharge. Second, there is disease of the cervix which occurs in women who have not had children and which is usually of gonorrheal origin. If we have a disease of the first type which I mentioned, that is, tearing with eversion, erosion and other lesions which occur after childbirth, I am impressed that the methods which have been recommended by Dr. Byford, and which Dr. Dickinson has described so nicely, will cure the great majority of patients. Amputation of the anterior lip after separating the bladder, as we do in the advancement operation, will oftentimes remove the focus of infection. On the other hand, if there is extensive gonorrheal disease or other serious infection which extends upward as far as the internal os, I am inclined to think these procedures do not reach high enough to eradicate the trouble in such cases. Even the Sturmdorf operation, although it oftentimes will relieve the infection if it is in the lower portion of the cervix, is not radical enough to remove the entire focus. We must then have recourse to measures which will get rid of the deep-seated trouble. I believe here we have a field for radium treatment. Small doses of radium put into the cervix up to or beyond the level of the internal os will destroy the excessive glandular growth. If we keep the cervix dilated so that it does not stricture, radium applied in small doses at intervals of not more frequently than once in three months, will relieve these patients.

I think the most important principles in the treatment of infected cervixes consist in the destruction of Skene's ducts and dilatation of the cervix, and use of a small dosage of radium not more frequently than once in three months. We use two twenty-five milligram tubes in tandem, applied for not more than six or eight hours, with a screen of one half millimeter of gold. The treatment ought not to be repeated short of three months. Subsequent treatment will depend on whether menstruation has been shortened as a result of the use of radium.

DR. HENRY P. NEWMAN, SAN DIEGO, CALIFORNIA.—There are so few normal cervixes in the nonparous, as well as parous woman of today, that this subject is naturally of great importance to the gynecologist. Fortunately correction and relief of these defects have not been limited to the two definite and circumscribed operations cited by the essayist. Amputation of the cervix and trachelorrhaphy are, in my opinion, operations of the developmental epoch of gynecology and have few or only exceptional indications in present day surgery. Tracheloplasty, an operative technic for which I discarded all former methods and which I offered to the profession some two or more decades ago in various publications* is, as its name implies, the surgical repair of defects of the neck of the uterus,—in other words the removal of the pathology and the plastic reconstruction of the organ. By this method, both contour and function are conserved. When properly understood its simplicity of procedure and general adaptability leave little to be desired in corrective and restorative surgery of the cervix.

DR. THOMAS J. WATKINS, CHICAGO.—I am enthusiastic about the use of radium in these cases when properly administered because it cures the erosion.

DR. HENRY T. BYFORD, (closing the discussion on his part).—In my paper I merely spoke of one phase of cervical endometritis. Last year I read a complementary paper on inflammation higher up in the cervix, about the internal os. My chief reason for giving treatment is the remote danger of carcinoma, and I do not

*Newman, Henry P.: The Indications for Plastic Surgery upon the Cervix Uteri, Tracheloplasty, with a New Method of Operating. Jour. Am. Med. Assn., Sept. 10, 1898, xxxi.
Newman, Henry P.: Tracheloplasty. Jour. Am. Med. Assn., April 20, 1901, xxxvi.

feel satisfied in merely telling the patient to come back for examination occasionally, so that I can watch her case. If she is coming back occasionally for inspection, I may as well cure her in the first place and remove the risk. I think Dr. Dickinson's delicate way of cauterizing the tissues is intended by him for so-called erosions that are more superficial, but it is necessary in these cases to penetrate the tissues more deeply.

DR. ROBERT L. DICKINSON, (closing the discussion on his part.—I wish to draw attention to the extraordinarily small number of true carcinomatous conditions found on section of these amputated cervixes. I wondered whether Dr. Curtis in making the sweeping statement he did concerning the cystic cervix meant that it should be let alone. I was not talking of little cysts; I showed pictures of deep-seated cysts. I do not think Dr. Curtis meant that we should disregard granular raw areas that have been giving symptoms for many years in which cancer can and may develop, and I think it ought not to go out from this Society that such conditions can be disregarded.

As to the use of radium, I have seen two penalties with the use of radium due possibly to unskillful treatment, and either an overdose or a repeated dose produced a senile cervix with scar tissue, secreting an acrid material that continued to chafe the vulva. I cannot cure one such patient. The same thing occurs in the intractable menorrhagias where an overdose of radium has done damage to the uterus, producing an exceedingly irritating secretion. Radium, therefore, must be used with expert care, perhaps in nonrepeated treatments.

DR. REGINALD M. RAWLS, (closing the discussion).—In regard to Leonard's statistics, if we make a careful study of his report we will find his results have been based on 400 cases operated on in Dr. Kelly's clinic, and that he followed up by letter the great majority of them. Furthermore, he states distinctly that all his amputations were high amputations of the cervix; that is, a cuff was made and two and a half centimeters of the cervical tissue was removed. In the series of cases I studied it was impossible for me to get the number of low, medium, and so-called high amputations which some of the operators referred to in their histories of cases of cervical disease. We are dealing with a series of cases in which some of the amputations were high, some medium, and some low.

Furthermore, as to the more frequent occurrence of abortion following amputation, it would occur more frequently in those cases in which high amputation was done.

In regard to dystocia, I shall publish in the paper several cases in which operative procedures were followed by pregnancies. The outstanding points in the study of these cases are: In amputation of the cervix the first stage of labor is shorter than after trachelorrhaphy. Patients who have had amputation of the cervix, those who answered by letter, have reported their labors were easier where we know for comparison, the total number of hours of labor previous to amputation, and although these women have had one or two children, they may have had labor extending over twelve or twenty-four or forty-eight hours in the previous pregnancies. Their labors have been much easier following this procedure. The labor has lasted four or five hours in some as compared with twelve or twenty-four hours before this operation was done. In all cases where there is a report obtainable, any re-laceration in subsequent pregnancies that may have occurred took place after trachelorrhaphy and not after amputation.

OBSTETRICAL SOCIETY OF PHILADELPHIA. STATED MEETING, APRIL 7, 1921

THE PRESIDENT, DR. JOHN A. MCGLINN, IN THE CHAIR

DRS. EDWARD A. SCHUMANN AND CHARLES S. BARNES presented a paper entitled **Syphilis and Childbirth;—Observations on 661 Cases Occurring at the Philadelphia Hospital.** (For original article see page 612.)

DISCUSSION

DR. PHILIP F. WILLIAMS.—Several years ago Dr. Kolmer and myself studied a series of 300 Wassermann tests in cases that came into the Gynecological Dispensary at the Presbyterian Hospital. Our incidence there was about 20 per cent. We found naturally that the colored population applying at the Gynecologic Dispensary had a larger incidence of syphilis than the white women. In that series of cases we had about forty pregnant women, in whom the incidence was 17 per cent. In four women who came in with stillbirths, three of them had positive Wassermann tests; there were 14 cases of habitual miscarriage, of whom 43 per cent had positive reactions. A little later we worked up another series of cases of women who were aborting, that is, cases that were present in the hospital and in a bacteriologic study of these women (complement-fixation test) we found that 8 per cent of the series had positive reactions for syphilis. In the 30 women in the first series who had abortions, there were about 33 per cent with a positive reaction. In 1919-1920, we started to make Wassermann tests in the mothers and from umbilical cord blood at the Medico-Chi Maternity service. We had 227 tests performed in the service, among which 190 women and 190 children gave a negative reaction; with blood and umbilical cord Wassermans. Nineteen of the women gave positive reactions, where the cord blood was moderately or weakly positive, that included also one syphilitic fetus, which makes an incidence of about 8 per cent and, divided between black and white of 7.4 per cent black and .6 per cent white. In the service we had but one woman who gave a negative Wassermann reaction where the baby's cord blood was positive. In that case the cord blood was reported as weakly positive. It was about a week after the woman was delivered when we got the report and we gave immediately an injection of neoarsphenamine, and five days later got a weakly positive Wassermann in the maternal blood. All the cases at the Medico-Chi that have given even weakly positive reactions have been turned over to the Social Service and referred to the Pediatric Clinic and Syphilis Clinic at the Polyclinic for further treatment. The problem of transmission of syphilis is naturally a very interesting one, but at the same time one very, very seldom finds a case in which there is negative mother's and a positive cord blood.

In the Medico-Chi we took the Wassermann test when the women came into the clinic in labor. When we had an idea that syphilis might be present we sent the placenta to the laboratory for study and have never yet received a report that the placenta was syphilitic. It seemed we should have obtained it two or three times in view of the fact that several other large maternity clinics in the United States have reported that syphilis in the placenta seems to be rather a common thing. Jeans and Cooke reporting a year ago on syphilis in St.

Louis, said the coincidence of positive cord blood Wassermann and syphilis in the placenta was 95 per cent. So far as Colles' law is concerned, the Wassermann reaction undoubtedly has upset to a certain extent the rules to explain these interesting phenomena. Women who formerly had been considered subjects of Colles' law are undoubtedly latent syphilitics and indeed there are some women who would be considered by Colles' law nonsyphilitic, yet spirochetes have been demonstrated in their lymph nodes. As to Profeta's law the children are very probably cases of latent or congenital syphilis, although they do not show it. It has been an interesting thing to me in working right along with these women, as we have not taken these figures from any records done by other men or other services, but I have seen every one of these women whose report comes back positive and I have talked to them and tried to elicit the history of infection and it has been an extremely difficult thing to secure. In fact we have not had more than two or three women in all this series of Wassermann cases that gave me any history at all. They give no history of a primary lesion and none of a secondary. You do not find any gummas, the epitrochlear glands are not enlarged, neither do they have any other evidence of syphilis. I do not know whether they are all congenital syphilitics or not. So many of them, practically all, seem unable to give any history of infection. In fact only two cases in the Medico-Chi series gave a history of syphilis. One was a colored girl, referred to us from another hospital where she had come in with secondary syphilis. Being pregnant she had been referred to our clinic for delivery. She had a negative Wassermann, umbilical cord was negative and the placenta was negative for syphilis because of her intensive arsphenamine treatment during pregnancy. We had another girl seventeen or eighteen years of age, white, single, who was referred to us for delivery at the beginning of the ninth month of pregnancy. She had a chancre on her upper lip. She came into the syphilis clinic at the Polyclinic for treatment for this chancre. She was on intensive arsphenamine treatment at the Polyclinic, came into the maternity ward and was delivered of a healthy looking child, weakly positive cord blood reaction. That woman went back to the Polyclinic for further treatment. We bled the child once six weeks after it had been born and it had a negative Wassermann then. The woman's condition subsequently cleared up. Dr. Kolmer has said that some of these positive cord blood Wassermann tests were possibly due to the transference from the maternal end of the cord of a certain amount of syphilis "reagin" which might account for positive reactions in these apparently healthy children. I would like to hear from Dr. Barnes and Dr. Schumann as to whether or not any work was done on women with a negative reaction but with positive babies' blood and whether the placenta was studied in any of these cases.

DR. STRICKER COLES.—One question has been interesting to me in reference to the syphilis of the father. I have had two cases occur in rather prominent people. One of these men was treated by Hunter McGuire, of Richmond. This was before the Wassermann test was discovered. He treated this young man over a course of ten years. Then he said: "You are well, you can get married." I knew the woman the patient married, she was a patient of mine. She was apparently a healthy girl, but gave birth to three syphilitic children. Another case was treated by a well known genitourinary specialist, Dr. Orville Horwitz, now dead. He treated the man for a long time. He said to this man: "You are well, get married." He married apparently a perfectly normal and healthy girl and she gave birth to a syphilitic child, macerated and with every evidence of syphilis. What I would like to know is, if a man is treated by a good syphilologist until pronounced well, and he married, would he have syphilitic children? The women I referred to had syphilitic children and they

did not show any evidence of it, either one of them. The woman who married the man treated by Hunter McGuire lived many years and never showed any syphilis; she died from other causes. As far as I know these babies were syphilitic. They were born naturally and showed syphilis. Now how did they get syphilis? As to the Wassermann reaction, I am disappointed. I cannot depend upon it. Some cases have been syphilis negative and the clinical symptoms and Wassermann reaction do not always agree. I would like to ask whether any of the members of the Society have ever had one of these cases—a man cured, marrying a healthy girl, the offspring being syphilitic.

DR. EDWARD A. SCHUMANN.—Dr. Barnes and I both being pessimistic, this paper was written as the result of disappointment after we decided to look over the records of Blockley and make a very interesting and valuable contribution to the subject of syphilis in childbirth. After spending hours out there, the result of our labors is before you and it means absolutely nothing. The routine standard procedure in obstetric clinics is to take a Wassermann reaction when the patient enters the hospital, if positive she has syphilis; if negative, she has not. At the time of delivery the cord blood is sent to the laboratory and there are recorded these statistics. And so all over the world percentages are based on these very imperfect, casual sort of statistics, and then the syphilographers will say very definitely, "Every syphilitic mother has a syphilitic baby," but they cannot prove it. I have a case in my practice, a woman actively syphilitic. In 1910 she became pregnant and delivered herself of an apparently healthy infant. The Wassermann reaction in that child was never positive. That child, at least until six or eight months ago, when I last saw him, never presented any evidence of syphilis. The family are anxious about him and have Wassermanns once a year. When reported to syphilographers they say: "Yes, but wait for another ten years!" By that time no one could tell whether the disease is congenital or acquired and therefore I maintain that these various old laws have not been definitely disproved. I hold no brief for them, but I know we will get no further until we do intensive work in hospitals with obstetric services. We must call into conference the syphilologists.

Pathologists differ widely in their interpretations of what constitutes a syphilitic placenta. Accepted textbooks on gynecology fail to give any definition of a syphilitic placenta. The only definite pathology would be the finding of the spirochete in the villi and as Dr. Williams has stated you may examine hundreds of slides and find perhaps one spirochete!

DR. LIDA STEWART-COGILL.—I desire to report two cases in which the macerated babies showed spirochetes in the tissues and yet a negative reaction was found in both mother and father. My experience, small as it is, is very similar to Dr. Barnes' and Dr. Schumann's. I am often disappointed as time and again we have healthy infants and the mother shows the Wassermann reaction. As far as local reaction is concerned, Dr. Meine of the Woman's Hospital made examinations on one hundred cases at the time we were interested in wet nurses. We found the reaction varied, the mother would have a positive reaction and there would be a negative reaction in the cord and so we pay no attention to the reaction we get in the cord.

DR. JOHN A. McGLINN.—We deliver about 350 illegitimate children a year at St. Agnes'. Gonorrhea is present in about 55 per cent of the cases; we find syphilis very seldom present, although we do Wassermanns in all these cases and we seldom find positive Wassermanns or any evidence of syphilis in the children. All the children are studied from the standpoint of Wassermann and clinical syphilis before they are sent out to wet nurse. Dr. J. Whitridge Williams

in a paper read at the American Gynecological Society stated that as the result of his study he is not prepared to say we could discard Colles' and Profeta's laws. There were certainly some cases that would indicate that they were still effective. Dr. Coles asked some of us to state a case where the father was positive and we were certain that he had a healthy child. I had such a case where a man went to a dentist, had a tooth treated, developed a chancre of the gum. He recovered from the chancre and had a positive Wassermann subsequently. He was treated until he had a negative Wassermann and then carried on still further with treatment for two years and observed for four years after his final treatment with no clinical evidence of syphilis and with negative Wassermann. He was engaged to be married and he told the young lady of his plight and she agreed to wait. She finally broke her engagement. Finally he married another woman and they have a very healthy child. There is no evidence of syphilis in the man or woman. There are cases where women have definitely syphilitic children and repeatedly negative Wassermans beforehand, with no evidence of syphilis on the part of the woman. I recall a woman who has repeated macerated fetuses, she did not bring a living baby into the world until the fifth pregnancy. She was studied serologically here, in Berlin, and in Petrograd. A negative Wassermann test resulted both for her and her husband; she then became pregnant again and during pregnancy she was treated actively for syphilis and brought forth an apparently healthy baby.

DR. CHARLES S. BARNES.—There are some very interesting and peculiar things in relation to this subject. I recall a case in which a young woman came to me for attendance in pregnancy and childbirth two years ago. She was a splendid looking woman so far as appearance was concerned. She gave birth to a well developed child. So far as I believe there was no birth injury. Without rhyme or reason the baby died in a few days. She had a history of one miscarriage. She was very anxious to have children, and she became pregnant soon again. Last fall she gave birth to a macerated fetus. Wassermann examination upon the husband and woman have been negative and there is no suggestion, so far as clinical evidence is concerned, of syphilis in either; and yet the thought hangs over her husband that the wife's father died of some form of neurosyphilis. It makes me wonder if there is not, in her case, some very latent congenital condition of syphilis which leaves its impress upon her offspring. What I think is most essential in this connection is to emphasize the necessity of more intensive scientific study of this subject.

Department of Reviews and Abstracts

CONDUCTED BY HUGO EHRENFEST, M.D., ASSOCIATE EDITOR

Selected Abstracts

Pregnancy Complicated by Disease

MacKenzie: Heart Disease and Pregnancy. The Lancet, London, 1921, cc, 1163.

During the early months of pregnancy practically no changes in the circulation can be detected. Towards the sixth month response to effort begins to be noticeable in breathlessness after slight exertion. At about the seventh month the heart frequently is displaced until the apex is pushed out one inch beyond the left nipple line, and upwards to the fourth interspace. This change was thought due to hypertrophy of the left ventricle, an assumption for which MacKenzie has been unable to find any anatomic evidence.

In some patients the veins of the legs, of the thighs and vulva swell. Hemorrhoids are frequent. These changes are the result of actual pressure on the veins and not of back pressure from the heart. Marked change in the peripheral vascular system, in the smaller arteries and veins, is particularly evident in the breasts. Varicose veins are common in people with perfectly healthy and efficient hearts. Not the result of back pressure is a pulsation in the veins of the neck. Among healthy women these pulsations are present at one time and absent at other times. The writer carefully explains this phenomenon.

Swelling of the legs, not caused by nephritis, is common. During pregnancy in many patients the face becomes tinged and dusky while the lips become dark red.

Many patients suffering from cardiac disease show abnormal circulatory signs during pregnancy. The great majority, however, pass through pregnancy, confinement and puerperium with no trouble. Some cases of mitral stenosis do not suffer in the least, while others suffer severely. Cases of arrhythmia show great variations, the great majority passing safely through. Cases, again, in which the heart is weakened from causes but presents no abnormal physical signs, such as murmurs or irregularity, bear pregnancy well and seem little the worse afterwards.

There are two forms of heart force: one, sufficient for the needs of the body when at rest—the rest force; and another held in reserve and used only when an effort is made—the reserve force.

The pregnant state imposes more work on the heart not only in connection with the maintenance of placental circulation but also in respect of the additional weight carried by the mother. There are also disturbing factors in the form of interference with the shape and movements of the chest wall, and displacement of the heart itself which call upon the reserve force.

The first signs of heart failure are a diminution of its power to respond to effort and the subsequent functional impairment of organs inadequately supplied with blood. Diminished circulation through the cleansing organs of the body leads secondarily to an accumulation of waste products in the blood. Its consequences react upon all the organs expressing themselves chiefly in breathlessness and pain in the heart region. One or the other of the symptoms is always present, however slight the degree of heart failure. Dropsy and enlarged liver are sometimes spoken of as cardinal signs of heart failure, but they occur only in heart failure from certain diseases and in an advanced stage of the condition.

Pulmonary stasis tends to occur in cases of pregnancy complicated by mitral stenosis. MacKenzie found that while crepitations at the bases of the lungs were of relatively frequent occurrence in healthy pregnant women as well as those suffering from heart disease, they were of serious significance and an indication of danger only when the pregnancy was complicated by heart disease. They are, in his opinion, due to edema occasioned by a diminution of the force of the right ventricle. The danger in mitral stenosis lies in the addition of the embarrassment caused by the pregnancy to the already existing pathology. Back pressure is a factor only in some cases. In mitral stenosis the left auricle undeniably is often embarrassed and in some cases the pulmonary circulation shows this disability.

About 90 per cent of the cases of heart failure with dropsy and enlarged liver observed by MacKenzie were cases of auricular fibrillation. Moreover in the great majority of cases of heart strain, i.e., where heart failure with breathlessness had suddenly set in while the individual was making a violent or prolonged effort, the failure was due to the sudden onset of auricular fibrillation. It is often attended by little or no impairment of cardiac efficiency. In such cases the heart muscle is good and the rate of the heart not markedly increased.

Some physicians admit that murmurs may exist without significance, yet to them the difference between murmurs of serious importance and those which are innocent is so vague that they consider it wiser to view all murmurs with suspicion. In no field of medicine this attitude toward murmurs proves so disastrous as in pregnancy. The detection of an innocent murmur has often been a reason for forbidding pregnancy or even marriage.

The writer next explains in detail the characteristics of physiologic and functional murmurs not necessarily produced by dilatation of the heart, and discusses their differentiation and proper interpretation. Estimation of the significance of murmurs, as of all other signs, should be based not on the murmur itself but on the functional efficiency of the heart and on the presence or absence of additional symptoms of cardiac mischief (size, rate, rhythm). The detection of a mitral systolic murmur in a woman who is pregnant or may become pregnant should cause the physician to consider the following points: (1) The response to effort; (2) the size of the heart; and (3) the rhythm of the heart. If the response to effort is good and the heart is not increased in size, then the murmur requires no further consideration, as in all likelihood it is physiologic. If there be an increase in size of the heart, but no diminution in the response to effort, and if the circulation is well maintained, pregnancy may be allowed, even if there be a history of rheumatic fever. If the size of the

heart is increased and the response to effort is limited, the case requires careful consideration. It must be determined whether the limitations are or are not due to a temporary cause, and whether or not the heart muscle has been damaged.

If there is an irregularity of the rhythm of the heart, its nature must be carefully investigated. Should the irregularity prove to be of the youthful or respiratory type, then there will be no danger if pregnancy is incurred. If, again, it is due to extra-systoles, no fear need be occasioned by their presence. In such instances opinion must be based on the presence or absence of other signs (size of the heart, response to effort).

The heart affection most frequently causing danger in pregnant women is a mitral stenosis following rheumatic fever. Back pressure develops as the result of the narrowing of the mitral orifice. There is a tendency to congestion of the lungs. More work is thrown on the left auricle, and right ventricle and auricle. When these begin to fail pulmonary circulation becomes embarrassed. In cases of pregnancy the growth of the uterus adds to this embarrassment. The damage due to rheumatic fever, however, frequently extends also to the heart muscle, later indicated by a presystolic murmur. Therefore, even a short presystolic murmur in the presence of a marked inefficiency of the heart means danger in case of pregnancy. When the heart is large or irritable, and effort readily produces palpitation and breathlessness, even if there be no diastolic murmur, pregnancy should be forbidden.

Aortic stenosis apart from regurgitation is extremely rare in the young. In general, pregnancy may be permitted in a young woman with aortic regurgitation, if there is no Corrigan pulse, if the heart is not, or only slightly, enlarged, and if the response to effort is good.

The importance of irregularity of the heart's action has not been sufficiently recognized. Even today, few physicians, and evidently no obstetricians, have made themselves familiar with this subject. As a consequence the subject is shrouded in mystery; and where we get mystery we get fear, and we find people with irregularities treated like people with murmurs. In pregnancy we have to deal chiefly with three forms of irregularity: respiratory irregularity, extra-systoles, and auricular fibrillation.

In the respiratory irregularity, probably the most common of all, the pulse is continuously varying in its rate. When the patient is made to breathe slowly and deeply, the relationship of the altering rhythm with the different phases of respiration can easily be determined. Respiratory irregularity is common in healthy young women and occurs in women of mature years, especially if nervous. In no case should it be a reason for treatment or a bar to pregnancy.

The extrasystolic irregularity is due to a premature contraction of the ventricle. When this irregularity is the only abnormal sign it can be ignored. MacKenzie found extrasystoles present in 50 per cent of healthy pregnant women.

The form of irregularity which is most commonly associated with heart failure in women at the child bearing age is that due to fibrillation of an auricle. The astonishingly good effect of digitalis in these cases has been convincingly shown by MacKenzie.

The author's experience with pregnancy in women with auricular fibrillation is limited to half a dozen cases. All gave a history of rheu-

matie fever and all had mitral stenosis. In each case the advance of pregnancy was accompanied by increasing signs of heart failure. In all but one, premature labor set in between the sixth and seventh months. All patients lived through the confinement, but none ever recovered the former degree of health. In his experience pregnancy does not produce immediate heart failure in these cases, but so weakens the organ that it hastens the fatal issue. MacKenzie believes that auricular fibrillation should be a bar to pregnancy. Should pregnancy have occurred, careful observation must be maintained.

There are other abnormal rhythms which may have to be considered in the pregnant state. The most common of these is known as auricular flutter. This form of paroxysmal tachycardia may occur with different types of heart trouble. Its significance in pregnancy should, therefore, be considered in relation to the presence or absence of disease.

The neurotic heart is a very distinct type in which the symptoms are due mainly to disturbances of sensation. Attacks of great severity, resembling angina pectoris, sometimes arise. Pregnancy can safely be undertaken by these people. It often does them a great deal of good.

When congenital defects of the heart exist and the organ is large, or when there is cyanosis or clubbing of the fingers, the response to effort will be so limited that pregnancy obviously is a definite danger and should be avoided. When on the other hand, the heart is normal in size, or only slightly enlarged, the response to effort good, and no cyanosis present, then, notwithstanding any physical sign, such as a murmur, marriage and pregnancy may be allowed.

With an inefficient heart, the pregnant patient should be examined weekly for signs of heart failure. The patient should be confined to bed sitting up or lying propped up, since lying down tends to hamper the circulation in the bases of the lungs. Several times a day she should be made to breathe deeply to assist the right heart in expediting the flow of blood through the lungs. If the heart failure thus is kept in check, the pregnancy can be allowed to go to full time. When labor has advanced so far as to justify interference, it should be terminated artificially, thus avoiding the strain of the last stage. When the heart failure is so extreme as to threaten life, intervention is necessary and labor should be induced.

Sleep is essential during pregnancy. If necessary, the milder hypnotics should be given.

This monograph represents the most exhaustive and instructive study of this important problem offered in recent years. Only its salient points, of interest to the obstetrician, are given in this abstract.

NORMAN F. MILLER.

Rowlette: A Note on the Heart in Pregnancy and Labor, Dublin Journal of Medical Science, June, 1921, No. 16, p. 260.

The effect of pregnancy on the physiology of the heart is considered by the author to be evidenced first, by the displacement of the heart upward and outward, and second, by a certain amount of hypertrophy. The first effect is readily demonstrable, but the degree of hypertrophy is subject to question.

Corroborating MacKenzie, Rowlette finds evidence of disturbed function "incidental to pregnancy": "(a) Limitation of the field of cardiac

response. (b) Changes in rate and rhythm. (c) Dilatation of the right side of the heart. (d) Tendency to edema of the lungs. (e) Tendency to overfilling of the veins of the legs. (f) Marked pulsation of the veins of the neck." Such disturbances are more pronounced in the diseased heart and immediately influence the judgment of the obstetrician.

The author calls attention to the fact that statistics in regard to the incidence of heart disease and the mortality rate from heart disease when associated with pregnancy, vary widely from MacDonald's (70.6 per cent) to those of Fellner from Schauta's Clinic (.1 per cent). This discrepancy he believes is due to the failure to note mild cases on the records in the one, and to the inclusion of every functional murmur in the other group. An analysis of the Rotunda statistics from 1905 to 1915 reveals 46,204 deliveries with 168 deaths, 11 of which deaths were associated with some cardiac disease. Therefore, in 6.54 per cent of all deaths heart conditions were noted, and death associated with heart disease occurred in only one of every 4,200 women delivered.

Rowlette emphasizes that each individual case must be analyzed from two view-points, "first, the nature of the organic lesion, and second, the condition of the heart to meet the demands made on it." Under the first head, mitral stenosis seems to be the most serious for the pregnant woman; under the second head, subjective and objective symptoms, such as dyspnea, cyanosis, enlarged liver, and general edema forewarn of impending failing compensation. The earlier in pregnancy compensation fails the more serious the condition.

A. NOWELL CREADICK.

Thomas: Heart Flutter and Fibrillation in Pregnancy. *Journal American Medical Association*, 1921, lxxvi, 1227.

While the literature on cardiac complications in pregnancy is rich in the description of valvular lesions, Thomas was unable to find any mention of cardiac arrhythmias in pregnancy. He reports the following case: The patient was admitted to the hospital in a semicomatose condition, being about six months pregnant. The electrocardiogram taken at that time showed an auricular flutter at the rate of 320 per minute which changed to a fibrillation by the next day. Under digitalis medication she gradually improved and after a four weeks' stay in the hospital, was delivered of a 5½ pound dead fetus. Labor itself caused no difficulty and the patient left the hospital soon afterwards in good condition. Thomas emphasizes the importance of early diagnosis.

R. E. WOBUS.

Wiesel: Pregnancy and the Circulatory System. *Monatsschrift für Geburtshilfe und Gynäkologie*, 1921, liv, 73.

Wiesel states that, as a normal pregnancy reaction, there occurs an hypertrophy of the heart and of the peripheral vessels, which in the latter shows itself as a peculiar infiltration of the wall, involving the musculature but not participated in by the elastic tissue. In many diseases of the endocrine glands one sees a very similar picture. Obviously the endocrine organs are responsible for the changes in pregnancy. Before the end of the gestation period these new tissues undergo a fatty degeneration. Anatomically, it can be shown that, in pregnancy complicated by heart disease, the formation of new muscle in the vessel walls

is much less marked than when the heart is sound, a fact which quite explains the tendency to disturbances of compensation.

Clinically, mitral stenosis is the most serious complication, although acute myocarditis is very dangerous. Recurring endocarditis is always an indication for interrupting the pregnancy. Hyperthyroidism and Basedow's disease are likewise of serious import. The general condition of the patient and the state of her nutrition must always be considered.

E. D. PLASS.

Meurer: Leukemia and Pregnancy. *Nederlandsch Tijdschrift voor Geneeskunde*, 1921, lxx, 1440.

A woman was admitted to the hospital in the seventh month of pregnancy complaining of pain in her lower abdomen. She had previously given birth to seven healthy children and had had one abortion. Two years before admission, she had grippe pneumonia and one year later applied at another hospital on account of an enlarged abdomen, considering herself pregnant. The enlargement, however, was found to be caused by an enlarged spleen. At that time she remained in the hospital for about three months, having a rise of temperature during the first weeks. Her spleen extended to the linea alba, the blood containing about 3,320,000 erythrocytes and 250,000 white cells.

At the present admission the uterus was found pushed to the left by the enlarged spleen, which extended beyond the midline. The liver was distinctly palpable. No enlarged glands were demonstrable. The urine showed traces of albumin and the temperature was about 101. The blood contained 3,200,000 erythrocytes and 432,000 leukocytes; hemoglobin, according to Sahli, was 42 per cent.

On account of her increasing asthenia, the induction of labor was considered, however, at 35 weeks she gave birth spontaneously to twins weighing 1850 and 1950 gms. respectively. Both did well during their stay in the hospital. The maternal side of the placenta showed the typical leukemic blood, while that on the fetal side was perfectly normal. One month postpartum, the maternal blood containing 1,910,000 red cells and 92,000 white cells, the hemoglobin being 37 per cent.

R. E. WOBUS.

Esch: "Pseudopernicious" Anemia in Pregnancy. Its Cause and Curability. *Zentralblatt für Gynäkologie*, 1921, xlv, 341.

The clinical appearance and course of pernicious anemia in pregnancy, labor, and the puerperium, are known, but there are few reports on the end results with these patients, and the etiology of the disease is still obscure. Esch has already reported six cases, of which three died in the first few days of the puerperium, two recovered, and one was markedly improved. One has since gone through a pregnancy without recurrence and with a normal blood picture. Two have been under observation for nine years, and one for six years, and all are free from recurrence. An interesting point is that in all there are nine cases reported healed without a single case of recurrence.

Hematologists have been unable to fasten true pernicious anemia on pregnancy or the puerperium. The unusual cases in which pernicious anemia follows the well-known anemia of the puerperium must be considered as coincidences rather than consequences. The fact that this

"pernicious-like" anemia of pregnancy is cured, is an evidence that pregnancy is its cause. In fact it is only those forms of pernicious anemia, where the cause is known, that may be cured. Further evidence is the fact that improvement and cure of the pernicious form of anemia in pregnancy, when it occurs, comes after delivery. Moreover the fact that in these cases there are no recurrences makes it differ from the cryptogenic pernicious anemia type. Each has already declared that true pernicious anemia is not the result of pregnancy, and seeks for a causal relationship between pregnancy and this "pseudo-pernicious" anemia. Naegeli believes the true form to be due to the action of a specific toxin on the bone marrow. Morawitz and others consider the alteration in the bone marrow to be compensatory for the breaking down of the blood, which is the primary condition. Without taking sides in this question, Esch believes the "pseudo-pernicious" anemia to be of the Morawitz type. The maternal blood is to a certain extent broken down in the placenta and furnishes, for example, iron to the fetus; there is a partial hemolysis. This necessitates intensive regeneration of the blood, with possible alteration in the bone marrow and a markedly altered blood picture, with a tendency to many evidences of hemolysis on the part of the pregnant woman—for example, hemoglobinuria, icterus, etc. It is assumed, therefore, with reason, that the pregnancy anemia is of hemolytic origin, and the alteration in the bone marrow and the appearance of immature blood cells in the circulation are secondary. From this it is evident that the "pseudo-pernicious" anemia of pregnancy differs in essential points from true pernicious anemia, inasmuch as its cause is known, being a symptom complex resulting from the pregnancy, and further may completely disappear. It is better described as "pseudo-pernicious" or "pernicious-like" anemia, which marks its difference from the true form in course and prognosis.

H. M. LITTLE.

Heynemann: The Treatment of Kidney Diseases During Pregnancy.
Therap. Halbmonatshefte, 1921, xxxv, 134.

In the treatment of the kidney of pregnancy the author considers bed rest as one of the most important factors. This, by eliminating the lordosis of the upright position, favors better circulation through the kidneys. It acts beneficially on the high blood pressure and helps to maintain an even body temperature. Dietetic measures are important, especially the elimination of spices, coffee and alcohol, and the limitation of salt and fluids. Proteins should be limited to 60-70 gm. daily, carbohydrates should form the main source of nourishment. A pure milk diet is not to be recommended because of its high content of fluid, albumin and salts. The bowels should be kept open, preferably by fruits or fruit juices. Treatment with pregnant and other sera has not been found of value, nor has medicinal treatment.

Such measures are usually eminently successful but occasionally show no result even when pushed to the utmost limits. A marked increase in edema and the occurrence of pre-eclamptic symptoms may then arouse anxiety. Diaphoresis and puncture have been recommended in the treatment of the edema; the results of the former have been almost uniformly bad—the latter is to be avoided because of the possibility of infection.

The occurrence of any of the pre-eclamptic symptoms, such as head-

ache, vomiting, visual disturbances, hypertension, oliguria or pain in kidney or liver regions, should form an urgent indication for hospital treatment where careful control of the patient is possible. Venesection and narcotics are most important in the treatment. Lumbar puncture may relieve the visual disturbances. Interruption of the pregnancy is rarely indicated in the kidney of pregnancy aside from the rather rare development of urgent pre-eclamptic symptoms, extreme anasarca and continued visual disturbances. Surgical treatment, kidney decapsulation, is not indicated as the prognosis under medical treatment is good enough. Its results in eclampsia are still disputed.

An acute glomerulo-nephritis may occur during pregnancy, and is recognized by the presence of numerous red blood cells in the urine in addition to the usual findings of nephritis. It is a rather rare condition, but seems to be more common recently, possibly as a sequel of the influenza epidemic. The usual treatment of this condition in the non-pregnant state, bed rest, bodily warmth and the exclusion of kidney irritants from the diet is indicated. The interruption of pregnancy must be seriously considered in all cases, and is usually followed by marked improvement. Some manifestations usually persist for months, however, and continued careful treatment is most essential. The diagnosis of chronic glomerulo-nephritis during pregnancy is one difficult to make unless its previous existence was known. The chronic type usually exhibits marked exacerbation during pregnancy and then resembles the acute form. The indications for treatment are much the same as in the latter.

Kidney tuberculosis, where unilateral and in an early stage, is to be treated by nephrectomy without interruption of the pregnancy. Where bilateral or advanced, induction of labor is in all cases indicated.

MARGARET SCHULZE.

Couvelaire: Two Cases of Retinitis Gravidarum. *Gynécology et Obstétrique*, 1920, ii, 305.

These two cases appeared in the fourth and fifth month of pregnancy respectively. Only 20 per cent occur before the sixth month. They were associated with the syndrome of renal insufficiency (oliguria and albuminuria with increased blood pressure). Nitrogen retention did not obtain.

In one of these cases the appearance of albumin in the urine did not precede the ocular symptoms and signs. This shows that one must not be satisfied with urine examination alone. Violent and persistent headache and increase of blood pressure should fix the attention on a possible toxemia of pregnancy to the same degree as albuminuria, oliguria and edema.

Nitrogen retention in retinitis gravidarum suggests a previous kidney lesion. Though retinitis gravidarum does not offer as grave a prognosis as the retinitis in Bright's disease, yet that it indicates a serious situation is evidenced by the findings of Burnier and Rochon-Duvigneaud. In 169 cases the mortality was approximately 11 per cent. Of those that recovered 14 per cent ended in blindness, 58 per cent regained partial vision and only 28 per cent recovered entirely. Immediate termination of pregnancy results in the smallest percentage of deaths or destroyed or impaired vision. Nonoperative treatment may be tried, but if the response is not rapid, expressed in diminished albumin, increase

of diuresis and reduction of blood pressure, or if the retinitis persists or extends, even in the absence of nitrogen retention, one should intervene and empty the uterus.

As to the influence of retinitis of pregnancy on the prognosis of future pregnancies, the few cases in literature indicate that although a toxemia with a retinitis in a subsequent pregnancy may not be fatal yet it is fraught with great danger to life and eye function. A future pregnancy should not be sanctioned until all signs have cleared up, especially signs of renal disability and even then, if pregnancy obtains, nephritis treatment should be instituted at the beginning of pregnancy, and the pregnancy should be terminated if persistent signs of toxemia obtain, especially at the advent of ocular signs. In such cases it is better judgment not to depend on subjective eye symptoms. The eyes must be examined frequently by an ophthalmologist to note the very beginning of pathologic changes.

R. T. LAVAKE.

Haffner: The So-called Placental Infarcts and Their Relation to the Albuminuria of Pregnancy, *Gynécologie et Obstétrique*, 1921, iii, 81.

Four hundred consecutive deliveries were followed in which catheterized specimens of urine were examined, before, during, and after labor.

All placentas were cut in 4 to 5 mm. sections.

In nearly one-half of all cases showing an albuminuria the placentas were normal. In 77½ per cent of placentas showing change the urine was normal.

Haffner sees no relation of cause and effect between placental infarcts and the albuminuria of pregnancy.

R. T. LAVAKE.

Fink: Causes and Significance of Edema in Pregnant Women. *Zeitschrift für Geburtshilfe und Gynaekologie*, lxxxiv, 1.

After discussing at length the various theories that have been expounded concerning the causes of edema in general, the author discusses edema in pregnancy. He considers the measurement of the circumference of the affected part as the best index of swelling, having found that weight, and fluid intake and output measurements were very untrustworthy. He reports results of observations over a considerable period of time on about 350 cases, finding edema of some degree in about 95 per cent. This, in most cases, he considers to be due not to primarily diseased kidneys, or to toxic effects, but rather to a disturbance of the normal balance of activity in the tissue cells, so that they absorb water more readily than they rid themselves of it. This is due to the fact that various hormones and internal secretions are thrown out of gear by the added strain of carrying on the vital functions of the child. This edema may affect any organ or tissue and when it affects the kidney, the circulation here is impeded so that the kidney cannot function normally. If the swelling is pronounced, damage to the kidney epithelium occurs, with albumen, casts, etc.—these, however, are all secondary effects, and not due to primary kidney disease. If the swelling is very great, local degeneration with the formation of toxic substances may occur with a resulting toxemia. The best treatment is to lessen the general metabolic load by keeping the patient quietly in bed, with restrictions of diet and salt intake.

MARGARET SCHULZE.

Salomon: Differential Diagnosis between Glycosuria and Diabetes in Pregnancy. *Muenchener medizinische Wochenschrift*, 1921, lxxviii, 386.

The author fixes the blood-sugar value of hyperglycemia as above 0.15 per cent and divides the glycosurias of pregnancy into three groups:

(1) Those which show a uniformly low percentage of sugar in the urine; this is the most common type. (2) Tolerance retained to a certain degree, and sugar excreted only on administration of a certain amount of carbohydrates; this is the doubtful type. (3) Sugar in the urine is high, both relatively and actually; this is the most infrequent type.

Differentiation is based mainly on the study of blood-sugar values. The blood-sugar on a "starvation" diet is first determined; a value of 0.1 per cent or less, points towards a glycosuria of pregnancy, especially if at the same time sugar be present in the urine; true diabetes generally shows, with sugar in the urine, an increase of blood-sugar on starvation. Following this, blood-sugar is determined on a carbohydrate diet. In the first group of continued low-percentage glycosuria, it is safe to begin with 50 grams of sugar and determine the degree of glycemia one hour later. In the great majority of cases of diabetes of pregnancy the blood-sugar value remains undisturbed, or rises only a few centigrams, remaining, however, below 0.15 per cent. Now the diet may be increased (especially if the amount of sugar in the urine has not been much disturbed), to 100 grams of sugar, bread and honey.

In the cases of group 2 or 3, where it is more difficult to rule out the possibility of a true diabetes, the first test is made with 150 grams of bread, and if no material increase of blood-sugar results, 50 to 100 grams of sugar are given. Generally, in a true diabetes, 150 grams of bread cause an increase in blood-sugar to a point above 0.15 per cent.

The results of this study are three-fold: (1) The "starvation" blood-sugar is 0.1 per cent or less; with even a high sugar diet, the increase is not marked, and will remain below 0.15 per cent. This is typical for the glycosuria of pregnancy, and repeated, enables one to make the diagnosis. (2) The starvation blood-sugar is as low as in "1," but on a carbohydrate diet an increase results to over 0.15 per cent. While this indicates a weakness of carbohydrate assimilation, it does not necessarily mean diabetes. This class of cases can only be diagnosed by a consideration of the clinical symptoms in addition to the laboratory test. (3) The starvation blood-sugar is already high, and the carbohydrate diet increases it still more: this condition must be considered true diabetes.

S. B. SOLHAUG.

Vincent and Gaujoux: Epidemic Encephalitis and Pregnancy, *Revue Française de Gynécologie et d'Obstétrique*, March, 1921, p. 147.

The authors report a case of epidemic encephalitis occurring during pregnancy and have collected eleven other cases from the literature. Of these twelve patients five recovered and seven died. The varied manifestations of the disease noted in general were evident in this series. The authors call particular attention to the likelihood of confusing the choreiform variety with chorea gravidarum.

That epidemic encephalitis has a higher mortality when complicated by pregnancy is doubtful. The type of the disease does not influence the

prognosis. It depends, in general, on the distribution and intensity of the infection. However, the disease seems somewhat more fatal when it occurs near the beginning or end of pregnancy.

The treatment does not differ from that usually employed. The authors do not advocate the termination of pregnancy because of the existence of the disease.

JOHN W. HARRIS.

Banister and Sophianopoulos: A Case of Encephalitis Lethargica Complicating Pregnancy, *The Lancet*, London, 1921, cc, I, 481.

The case reported was a primipara, 31 years of age, who developed signs and symptoms of encephalitis lethargica when practically at term. Labor was induced because (1) the patient's condition was becoming worse, (2) because the baby was alive, and (3) because it was hoped that the removal of the fetus might have a beneficial influence on the patient's condition.

Following delivery the patient improved, but only temporarily, fatal termination resulted five days after delivery. The question, as to the advisability of terminating pregnancy in these cases as an aid in treatment of the disease, is raised by the writers.

NORMAN F. MILLER.

Fino and Fabini: Epidemic Encephalitis and Pregnancy, *Gazzete d'Ospedale*, 1921, xlii, 402.

The two patients were in the eighth month of pregnancy, and in both the course of the disease was progressive, with a grave aspect in the first case. Interruption of pregnancy by introduction of a sound had an excellent effect in both cases. The delivery of the living and healthy fetuses was easy, and there were no microscopic lesions of the placenta. The poisons circulating in the body of the mother may have caused uterine contractions due to the stimulus exercised upon the motor nerve centers of the uterus, which are localized in the spinal medulla, for the delivery took place several hours after the introduction of the sound.

AMERICAN INSTITUTE OF MEDICINE.

Kirstein: Smallpox Vaccination in Women During Pregnancy and the Puerperium and Its Effect on the Newborn. *Deutsche medizinische Wochenschrift*, 1921, xlvii, 328.

Agreeing with the results of previous investigators, Kirstein, from extensive experience in vaccination of the newborn, finds that even repeated vaccination of the mother at any stage of pregnancy, does not confer immunity upon the newborn child. He found that in almost all cases pustules were produced on the children that were vaccinated from one to eight days postpartum. He attributes failures to error in technique. He also found that the full term babies stand vaccination quite well, but he lost one premature infant, weighing 1870 gm., as the direct result of vaccination.

R. E. WOBUS.

Morawetz: Smallpox in the Newborn. *Wiener klinische Wochenschrift*, 1921, xxxiv, 129.

There are two ways to decide whether and in what way the newborn is susceptible to infection with smallpox: one by its reaction to vaccination, the other by observing the results of exposure of infants to smallpox.

Wolff, in 46 infants a few hours to six days old, had positive reactions in all. Von Franz and Kuhner vaccinated 300 infants in the first five days of life and found the largest percentage (36 per cent) of negative reactions in those infants whose mothers had been revaccinated during pregnancy. Von Huguenin says that there are children who show considerable immunity to smallpox and vaccination, acquired from the vaccination immunity of the mother but that they soon lose this quality.

The author had a 3½ months old unvaccinated infant taken with smallpox in a room containing 14 other infants who had been there from 1 to 6 days, all attended by the same nurse. The day the diagnosis was made all were vaccinated. Of these 14 infants, 8 developed smallpox. They were all healthy and breast fed, from 2 to 5 weeks old. Of these, 6 were light cases, 2 of whom died early from cardiac failure. Of the other two, one was a severe case, and both died.

Taking the incubation period at 10 to 12 days, the infection occurred on from the first to the nineteenth day of life. The uninfected were exposed on from the first to the thirteenth day of life.

Seven were light cases and one severe, while six were not infected, which would appear to show that infants of this age have a partial and not seldom complete immunity to smallpox. Of those not infected two had positive vaccinations, one a negative, and the others were not known.

In regard to the vaccination of the mothers of the uninfected infants nothing was discovered. The mothers of the infected ones were 22 to 37 years of age, all vaccinated in childhood; two had not been revaccinated, while six were during the war, part positively, part negatively. Vaccination done at this time was negative in all and none contracted the disease although all went to the smallpox hospital with their children.

The question is whether the immunity is obtained through the mother's milk or is acquired in utero, by the transfer of antibodies from mother to child. These were all nursing infants. Von Pfaundler says that immunity may be obtained from the mother by nursing in different diseases but not frequently. Perhaps this occurs in smallpox. Summary: Infants from smallpox immune mothers frequently are endowed with a slight protection against infection, but this immunity may not be over strong.

FRANK A. PEMBERTON.

Vignes and Stiassnie: Purpura Occurring During the Course of Three Successive Pregnancies, *Le Progrès Médical*, April 16, 1921, p. 167.

In a review of the literature Vignes and Stiassnie find that a grave prognosis is usually given those cases of pregnancy which are complicated by purpura. Contrary to this fact, however, these authors report a case in which purpuric lesions developed in three successive pregnancies.

The lesions occurred usually about the sixth week. They consisted of discrete, subcutaneous, hemorrhagic areas, measuring about one-half centimeter in diameter. The lesions were found for the most part over the lower trunk and the lower extremities, only a few being present above the waist line. Coincident with the appearance of these lesions the patient developed vomiting of pregnancy and hemorrhage from the nose and gums. The vomiting, although not of a severe type, was persistent throughout the pregnancy, while the hemorrhages were slight in amount but frequently repeated. Examination of the blood revealed a primary anemia of a moderate degree. The Wassermann reaction was

four plus. At no time did the patient experience fever or pains of a rheumatic nature.

In none of the three attacks was it necessary to induce labor, which started spontaneously at eight months with the first pregnancy and at term with the following two. The labors were normal and no postpartum hemorrhage occurred.

Following all three labors vomiting ceased and the purpuric areas involuted rapidly. Examination on the twenty-fourth day showed the blood picture to have returned to normal and the patient was discharged in good condition.

THEODORE W. ADAMS.

Gellhorn: The Influence of Syphilis upon the Pregnant Woman. Surgery, Gynecology and Obstetrics, 1921, xxxii, 535.

While due attention has been paid to the danger of syphilis to the unborn child, Gellhorn feels that its danger to the pregnant woman has been largely overlooked. From personal observation, as well as a review of the available literature, he finds that syphilis may endanger the pregnant woman in various ways. Among these are: Insufficiency of the uterine muscle resulting in either weak contractions or rupture; stenosis of the cervix due to scars or induration; obstruction at the outlet due to large condylomata; friability of the perineum due to various lesions; premature detachment of the placenta; and even rupture of a damaged heart during labor. In the puerperium, a tendency to hemorrhage as well as sepsis due either to retained fetal tissues or to local lesions, have been noted.

His obvious conclusion is to diagnose syphilis early and, in the interest of both mother and child, to administer adequate treatment throughout pregnancy.

R. E. WOBUS.

Acton: The Action of Quinine on the Pregnant Uterus, The Lancet, London, 1921, cc, 1, 216.

Acton was prompted to investigate the action of quinine on the pregnant uterus because the physician so often is asked regarding a possible effect of quinine in precipitating labor when the drug is administered to a pregnant woman suffering from malarial fever. He mentions briefly the work of various investigators and dwells on a very important factor which some of these earlier observers have failed to consider viz., the control of the malarial fever by quinine thus actually preventing the intrauterine death of the fetus. This beneficial effect he believes far outweighs any possible untoward results quinine may have in precipitating labor.

The author describes in detail his method of experimentation with the excised uteri of the test animals. In his experiments he noted that the quinine caused contractions, affecting equally the longitudinal muscle fibers of the upper uterine segment, which normally act as the driving force expelling the fetus from the uterus, and the circular fibers of the lower uterine segment, which normally relax and thus facilitate delivery of the fetus. The effect produced depends upon the dosage. Strong concentration produced a tonic spasm of the uterus which if sustained would cause asphyxia of the fetus from constriction of the placental sinuses. This condition, however, he believes could obtain only if the

patient were given an amount of the cinchona alkaloid sufficient to cause serious symptoms of poisoning.

The degree of concentration in the blood varied with the dose taken and the rate of absorption. He states further that cinchonism is correlated with the concentration of quinine present in the blood and varies with different individuals being more frequently seen in weak and anemic persons.

Concentrations such as would occur with large doses, increase the strength of the intermittent uterine contractions and if the cervix be dilated or patulous, or the membranes weak, the pressure produced by the increased contractions might be sufficient to cause rupture of the membranes, dilatation of the cervix and so induce labor.

He recommends therapeutically:

(1) The controlling of malarial fever by quinine or other cinchona alkaloid as the first objective in the treatment of these cases, augmented by sponging if necessary to keep the mother's temperature below 103° F. (2) The avoidance of large doses of these alkaloids. They should be given in divided doses of two and one-half to five grains every two to four hours, twenty grains a day being sufficient and ample to control any attack of malarial fever. (3) Finally, the associated employment of general means to prevent miscarriage, viz., complete rest in bed and judicious use of opium in allaying any mental excitement.

When the child is dead or the miscarriage inevitable quinine should be given in ordinary doses and the case treated on general obstetrical lines.

NORMAN F. MILLER.

Foggie: A Case of Peripheral Neuritis Occurring in Pregnancy. Edinburgh Medical Journal, 1921, xxvi, 250.

The author reports one case of this rather rare obstetrical complication and mentions its apparent toxic or infectious origin. The frequent association of hyperemesis with paralysis and neuritis of pregnancy suggests a common origin of the two. Clinically the condition in pregnancy resembles the peripheral neuritis met in alcoholism, the mental symptoms even suggesting Korsakow's syndrome. The common symptoms are hyperemesis, numbness and weakness of the muscles of the extremities, muscle atrophy, gripping pains of the arms and legs, loss of touch sensation, mental deterioration and delirium. Pathologically there is a degeneration of the affected nerves. Treatment consists in regulating the bowels and flushing the kidneys. The prognosis is good in most cases. Occasionally symptoms continue for several months after delivery. Unless paralysis of one of the vital nerves occurs there is no indication for inducing labor or fearing the ultimate outcome.

H. W. SHUTTER.

Franz and Katz: The Effect of Quinine on the Parturient Uterus. Medizinische Klinik, 1921, xvii, 677.

From a survey of the literature on the subject and from their own experiences, Franz and Katz reach the following conclusions regarding the oxytocic properties of quinine: (1) Under physiologic conditions, quinine cannot incite continued contractions in the completely quiescent pregnant uterus and should not, therefore, be considered legally as an abortifacient. (2) In certain pathological conditions, the drug is able

to stimulate the resting pregnant uterus to continued contractions. (3) From a practical standpoint, quinine is to be considered only as a contraction-strengthening agent, and the proper place for its exhibition is in those cases of primary inertia, in which the pains are regular but weak. (4) In secondary inertia the influence of the drug is uncertain, and when the pains have completely stopped it usually is inert. (5) Quinine is frequently useful to strengthen the pains. (6) The greater the irritability of the uterus, the earlier will the action of the drug become apparent. (7) There is apparently no method for extending the practical applicability of the drug. (8) The effect can be increased by its use in hypodermic injections.

E. D. PLASS.

Mayer: Does Pregnancy Increase the Malignancy of a Carcinoma?
Zentralblatt für Gynäkologie, 1921, xlv, 629.

As support to the old idea that pregnancy had little effect on coincident carcinoma in the uterus, came the opinion of Pinard and others, that repeated pregnancies might take place in a carcinomatous uterus; and, opposed to this, the opinion of Wertheim, Sarwey, Bumm and others, that a pregnancy had a decidedly aggravating effect on an existing carcinoma. More recently Theilhalber has declared that pregnancy favorably influences the operability of uterine carcinoma.

Mayer adds considerable evidence in support of this last point of view. In 1911 he had reported 9 cases of cervical carcinoma in pregnancy, with an absolute recovery after operation in more than 50 per cent, as compared with 20 per cent in patients not pregnant. Later he was able to collect 31 cases with an inoperability of only 20 per cent, as opposed to $33\frac{1}{3}$ per cent of cases not so complicated. He does not believe that carcinomata grow more rapidly during pregnancy.

Following the subject further (from Jan. 1, 1902, to October 1, 1920), and reviewing 1106 cases of carcinoma of the uterus, he found 56 cases, 18 of which were complicated by pregnancy and 38 of which occurred within a year of the last pregnancy. In this series of 1106 cases there were, therefore, 1.6 per cent only, complicated by pregnancy, and 3.4 per cent immediately subsequent to pregnancy. Inasmuch as carcinoma furnished but 5.5 per cent of the gynecological material, the infrequency of the association of the two conditions will be evident.

While in an earlier observation on 104 cases of carcinoma between the ages of 25 and 45, 8 or 7.7 per cent occurred between the ages of 25 and 30, in the forementioned 56 cases only 3 or 5.3 per cent were between these years. It is obvious, therefore, that youth did not predispose to a greater malignancy of carcinoma during pregnancy.

Tables are given of the operative results, which conclusively prove the "greater operability" claimed. Mayer admits that the parametrium and the glands were less actively involved than usual, and adds the testimony of Döderlein and Wertheim in support of this. He does not believe that the malignancy of the disease is increased by pregnancy, though under ordinary circumstances the diffusion of the carcinoma should be favored by the well-known alteration of the parametrium during pregnancy.

To the question, whether carcinoma in the aged is less malignant than in earlier life, the answer is difficult. Zweifel's dictum is—"The more youthful the woman, the more rapid the course of the carcinoma; the

older the woman, the less virulent the carcinoma." Mayer is opposed to this view. There is no doubt that recurrence is less frequent after 45 years of age, but inoperability increases. The decrease in the frequency of recurrence in later age is in part due to the fact that a large number die before the development of recurrence. Moreover, the observation that the greatest frequency of inoperability is later than the greatest frequency of carcinoma speaks for greater malignancy in the aged. A lessened malignancy of carcinoma in the aged is not evident, and it is impossible to adduce evidence based on the more resistant connective tissue of the aged, when conversely the nonresistant tissue of the pregnant woman does not allow the more rapid growth. The ovarian secretion seems to have no effect on malignancy.

Most probably the favorable factor is the increase of connective tissue during pregnancy, as there is no doubt that the development of carcinoma depends upon the resistance of the connective tissue to the development of the tumor, and Mayer has found that carcinoma occurred more frequently in women who had menstruated late, and where there was definite connective tissue hypoplasia.

H. M. LITTLE.

Reeb: Fibromata and Gestation, Gynécologie et Obstétrique, 1921, iii, 129.

One may formulate the treatment of cancer of the cervix complicating pregnancy as follows: if the cancer is operable consider only the life of the mother; if the cancer is inoperable, consider only the life of the child.

In the treatment of fibromata complicating pregnancy we must plan to save the lives of both mother and child and also, if possible, preserve the functions of gestation and menstruation.

It is important to recognize the types of fibromata that are likely to cause: (a) sterility, (b) complications of pregnancy, (c) complications of labor, and (d) complications of the puerperium.

(a) All fibromata that enlarge or otherwise deform the uterine cavity, alter the mucosa, or infringe on the channels of entrance of the spermatozoa are obstacles to fecundation.

(b) 80 to 85 per cent of pregnancies complicated by fibromata go to term without trouble of any kind.

A differential diagnosis must be made between fibroma and angular or extrauterine pregnancy, malformation of the uterus, pregnancy in the horn of a bicornate uterus, the retroflexed gravid uterus and a hematocele. The most common error is to mistake a pedunculated fibroid for an ovarian cyst or vice versa.

The types of fibromata that are most likely to arrest the progress of pregnancy are: large multiple fibroids; a very large fibroid in the fundus; an intraligamentous or retrovesical fibroid of the cervix; submucous fibroids; and pedunculated fibroids caught in the true pelvis.

The only indications for intervention during pregnancy are complications and serious accidents endangering the life of the mother such as: hemorrhages, attacks of peritonitis, torsion of a pedicle, cystic degeneration, intestinal obstruction, and pressure on kidneys, ureters, and bladder. This holds with but one exception and that is in the case of pedunculated submucous fibromata that are pushed out of the cervix, bleed and break down. These fibromata are so likely to cause infection during

labor that they should be removed as soon as diagnosed. In removing them, the asepsis must be perfect or disaster may follow.

(c) About 80 per cent of labors complicated by fibromata terminate normally. The remaining 20 per cent may necessitate: forceps, cesarean section or perforation. The position, size, and consistence of the fibroma are the determining factors in precipitating complications of labor.

As regards position, we may recognize two great divisions: (1) the fibromata that occupy the abdomen and leave the pelvic canal free; and (2) the pelvic fibromata that obstruct the canal.

(1) Abdominal fibromata do not generally produce dystocia. However they may cause several anomalies, such as, retardation of uterine contractions leading to a longer labor, retardation of engagement of the head with increased likelihood of early rupture of the membranes, prolapse of the cord or hand, and abnormal presentations.

(2) Pelvic fibromata will cause dystocia unless they are very small and soft or can be pushed up out of the pelvis or rise out of the pelvis spontaneously by retraction. As regards volume, according to Tarnier, dystocia begins when the fibroma reaches the size of a hen's egg.

Just so soon as it can be demonstrated that the fibroma obstructs the pelvic canal and will not become abdominal, cesarean section is indicated. If labor is terminated by any other obstetrical operation, the fetal mortality is from 55 to 88 per cent and maternal mortality from 34 to 76 per cent. Cesarean section will result in the greatest success if performed before rupture of the membranes, at the beginning of labor, and when not preceded by vaginal examination. Reeb counsels against removing the tumor abdominally, and then terminating the labor with forceps. The dangers for the child are too great. He also counsels against the vaginal removal of the tumor followed by delivery. Of 14 such cases reported by Troell, only four children lived, and one mother died of infection.

Cesarean is the operation of choice. After removal of the child, if the woman is young and the fibroma is enucleable, it should be enucleated. If after removal of the fibroma, one fears the consequences of another pregnancy because of a weakened wall, the woman should be sterilized by resection of the tubes. If, on the contrary, enucleation of a pelvic fibroma is not possible, if the body of the uterus is filled with other fibromata, or infection is suspected, hysterectomy should be performed, no matter what the age of the patient. In the case where enucleation is not feasible and a secondary vaginal enucleation is possible later, in young women where hysterectomy is to be avoided if possible, Reeb recommends the classical cesarean followed by the vaginal enucleation several weeks later.

Following delivery, retained placentas requiring manual removal are not uncommon. Hemorrhage may obtain from uterine inertia and is to be stopped by the usual means. If hemorrhage is caused by a submucous fibroma, enucleation may be indicated immediately, while good access is still possible.

(d) In the puerperium, involution is nearly always retarded. Repeated hemorrhages are frequent. Traumatization of the fibroid easily leads to infection. Torsion may take place and necrosis follow. Though most fibromata involute with the uterus, some fibro-myomata may increase rapidly in size and cystic degeneration may obtain.

Long continued supervision during the puerperium is imperative. In

the absence of complications, it is best not to intervene soon after delivery. After eight weeks the indications for operation are the same as for the treatment of the nonpregnant women and operation is easier and not fraught with as many dangers as would obtain immediately after delivery.

R. T. LAVAKE.

Stiassnie: Ovarian Cyst Complicating Pregnancy. *Progrès Médicale*, 1920, No. 42, p. 489.

Stiassnie, in a general review of both the literature and his own cases finds that the influence of an ovarian cyst on pregnancy depends largely upon the time when, in the course of that pregnancy, the cyst becomes active. If this occurs during the antepartum period, especially in the earlier months, the cyst may cause a displacement of the uterus. Again, it may become the cause of an abortion in about 12.5 to 20 per cent of cases at about the third or fourth month of pregnancy. Changes may also be seen in the cyst during this period, the most common of these being a rapid increase in its volume, a secondary malignant degeneration or a torsion of the cyst pedicle.

When the pregnancy has progressed to the point of labor the influence which a cyst may exert depends largely upon its location. Ninety-five per cent of the cases complicated by an abdominal ovarian cyst will be delivered spontaneously, although cysts of this type may cause malpositions and prolonged engagement. Quite the opposite is true of pregnancies complicated by pelvic cysts, as such patients are seldom delivered spontaneously but develop secondary inertia and demand an operative termination of the labors.

During the puerperium a cyst may develop a twisted pedicle, this being especially true in those cases in which there is a rapid involution of the uterus. On the other hand, they may delay involution and thus expose the uterus to secondary infection.

The diagnosis of an ovarian cyst is usually made during the routine examination of the pregnant woman. At times, however, it becomes difficult to differentiate it from hydramnios, twin pregnancy, fibroid or ectopic pregnancy.

The treatment also is governed by the stage to which the pregnancy has developed. If early, the only safe procedure is ovariectomy. Stiassnie claims that there is practically no danger of abortion from this procedure. On the contrary, when the pregnancy is near term, he advises strongly the use of a palliative treatment until term is reached at which time he employs cesarean section followed by ovariectomy. During the puerperium, if the cyst is causing sufficient trouble to warrant any interference at all, ovariectomy is the procedure of choice.

THEODORE W. ADAMS.

Koehler: Ileus and Peritonitis During Pregnancy, Labor and Puerperium. *Wiener klinische Wochenschrift*, 1921, xxxiv, 937.

These grave complications of pregnancy and the puerperium are uncommon. Less than 100 cases of such an ileus have been reported in the literature, to which four new observations are added. (1) Ileus on the second day after the third normal labor. Operation two days after beginning of symptoms. Findings: Obstruction at splenic flexure by a

band, which was cut and a colostomy made at the middle of the transverse colon. Death on fourth day after operation. Autopsy—Dilatation of intestine, beginning peritonitis. (II) Ileus six weeks after the fourth normal labor. Operation three days after onset. Findings: Much cloudy fluid. Intussusception of 40 cm. of ileum through the ileo-cecal valve into colon, not reducible; enterostomy above obstruction; drainage. Death on day after operation. Autopsy: The above plus necrosis of the invaginated ileum and beginning peritonitis. (III) Ileus at eighth month of sixth pregnancy. Operation day after onset. Vaginal Cesarean followed by a laparotomy. Findings: A kink at the middle of the small intestine with a constriction ring, ten inches above which was a tear in the serosa of the intestine the size of a silver dollar. The ring disappeared on manipulation of the intestines and the tear was sewed over so as to invaginate it. Did well for six days, passing feces and gas. Died on the eighth day from cardiac failure. Autopsy: Localized peritonitis, pulmonary edema, dilatation of heart. (IV) Patient had five normal labors, and an operation for extrauterine eighteen months previous to present illness. Ileus in fourth month of seventh pregnancy, Operation day of onset. Findings: Bloody fluid; a band across the ileum with gangrenous intestine; resection with anastomosis; drainage. Miscarriage on next day necessitating manual removal of placenta. No feces or gas passed. Died on third day. Autopsy: Diffuse Peritonitis.

In these four cases the diagnosis was easy. Fleishauer says that it is more difficult in the pregnant than in the nonpregnant. There seems to be no connection between the number of pregnancies and ileus. Of thirty-five cases in literature, nine had one previous pregnancy, seven had two, and nineteen more than two. Age seems to be of no influence. Various authors give the period of commonest occurrence as from the second to the ninth day of the puerperium.

There is no rule as to the causation of the ileus. The author believes that in his third case there had been an intussusception which had released itself before the laparotomy, as a result of emptying the uterus. The chance of a pregnant uterus causing ileus by pressure is slight (Wilms) but it perhaps increases the chance of ileus in the presence of a preformed pathological condition.

Planchu advises emptying the uterus in the hope that the obstruction will loosen as a result of the changed intraabdominal conditions. Essen-Moeller suggests doing this when the child is viable by a vaginal Cesarean. Several authors (Roelsing, Ludwig, and others) recommend doing the laparotomy first because if the uterus is emptied its contraction may cause a pull on adhesions resulting in tearing a hole in the intestines. The author believes the decision depends on conditions met in the individual case.

Koehler also saw the following two cases of peritonitis:—(I) Patient was seven months pregnant, had active tuberculosis of the lungs, and signs and symptoms of peritonitis. She started spontaneously in labor and had a normal delivery. The abdominal condition was better for five days when symptoms recurred and she died on the sixth day. Autopsy: Pulmonary tuberculosis. Intestinal tuberculosis with perforation and peritonitis. (II) Patient in eighth month of third pregnancy. Symptoms and signs of peritonitis in lower abdomen for twenty-four hours. Started in labor, normal delivery in sixteen hours. Collapsed

and died a few hours later. Autopsy: Diffuse peritonitis, acute purulent salpingitis, parovarian abscess, myocarditis.

The diagnosis and treatment of peritonitis connected with pregnancy is the same as without pregnancy. Many authors note that the intoxication from the peritonitis starts the patient in labor.

F. A. PEMBERTON.

Constantinesco: Cesarean Section in Treatment of Wounds Penetrating the Abdomen and a Pregnant Uterus, *La Presse Médicale*, February 16, 1921, p. 135.

The author considers this condition an additional indication for performing cesarean section. The patient, a woman 32 years old, was injured in the abdomen by being hooked with a horn. She entered the hospital the morning of the accident. Examination showed a breech presentation, almost at term; heart tones present; no sign of labor; some bleeding and considerable pain. The wound in the right flank was angular in shape; hemorrhage insignificant; amniotic fluid apparently escaping. Immediate operation was performed: The edges of the wound were excised. The umbilical cord protruding through the wound was followed to the opening in the uterus which was 5 or 6 cm. long. Protruding through this wound was also the right arm of the fetus. The wound of the uterus was enlarged and a well developed fetus delivered. The uterus contracted. The wound in the uterus was sutured after removal of the placenta. Abdominal drainage was employed, also posterior vaginal drainage. An uninterrupted recovery followed.

The author considers three possibilities for handling such cases: (1) Closure of the uterine wound after replacing any prolapsed parts. (2) Treatment of abdominal wound according to well recognized procedures and delivery of child through the vagina. (3) Method employed by the author, which he considers to be preferable. Conclusions: (1) Penetrating wounds of the abdomen and uterus without infection should be operated immediately by conservative cesarean section and use of double drainage. (2) Penetrating wounds of the abdomen and uterus with infection, i.e., if patient is treated after 24 hours, should be operated by cesarean section with total hysterectomy. Employment of drainage as necessary.

F. L. ADAIR.

Ebbinghaus: Vesical Stone as Obstacle in Delivery. *Zentralblatt fuer Gynaekologie*, 1921, xlv, 676.

Second pregnancy of the patient was greatly disturbed by bladder symptoms. On examination a firm immovable tumor is discovered lying behind the symphysis, undeniably representing the mechanical obstacle which prevented the head to descend. A diagnosis of tumor at the base of the bladder extending into the upper portion of the urethra was made.

Through a vaginal incision a vesical stone, measuring 6 by 4½ cm., and weighing 30 gm. was removed. After the operation a normal child was born without further difficulty. During normal puerperium leakage occurred through a small fistular opening, which later was successfully repaired.

The stone was a phosphatic concretion around a piece of old rubber tubing. During labor the advancing head had pushed its front end into the urethra.

H. M. LITTLE.

Jaques: A Case of Pregnancy After Sub-total Hysterectomy. *Schweizerische Rundschau für Medizin*, 1921, xxi, 274.

Woman, twenty-four, had a subtotal hysterectomy on January 20, 1908, for persisting pelvic suppuration. Both tubes and the right ovary were also removed. The cervix was left unsutured to improve drainage and the left ovary was covered with peritoneum.

On July 18, 1921, patient reappeared with symptoms of pregnancy (since April) and a tumor simulating a three months' pregnancy with softened cervix, pigmented areolas and enlarged Montgomery's follicles. No fever. A colpotomy was performed under the diagnosis of pelvic suppuration and a nine cm. fetus and secundines removed.

The author believes that this pregnancy was made possible by the sub-peritoneal fixation of the ovary close to the unsutured cervix.

L. A. CALKINS.

Item

THE TWO HEGAR SIGNS OF PREGNANCY

By G. L. MOENCH, M.D., NEW YORK CITY

WHEN Hegar first published his observations on the early uterine changes of pregnancy, he described two very characteristic signs. The first of these is known the world over as Hegar's sign and consists in the softening of the lower uterine segment. The second Hegar sign, the production, by proper technique, of a definite fold in the anterior uterine wall, as shown in Fig. 1, I have looked for in vain in every American textbook or article on obstetrics within my reach.

Furthermore, not a single one of the undergraduate or postgraduate students to whom I have described and demonstrated this sign had ever heard of it before.

It seems to have been consigned to total oblivion and, in my opinion, unjustly because, in doubtful cases where Hegar's first sign is doubtful, the other Hegar sign may be a great aid in arriving at a correct diagnosis.

To elicit the sign is easy enough, its only possible disadvantage may lie in the fact that the examiner needs help from a second person to steady the uterus. Retroflected uteri, of course, have to be replaced before the sign can be elicited. The technique of its detection is seen clearly in Fig. 1.

As to the first sign, it is probably felt best and most easily by examining with the index finger of one hand in the rectum and pressing down on the lower uterine body segment with the other hand.

This sign, as stated in most textbooks, may be so marked that the impression is given that one is dealing with a small uterus and an ovarian cyst above it, so completely may the fingers of the two hands seem to come together.

Usually this is regarded as a probable sign of pregnancy and it is said that cystic tumors of the uterus, or softening from other causes, may produce it. Yet, Hegar himself regarded it as a positive sign of pregnancy and probably no one can remember any case in which this first sign of Hegar was typical where pregnancy was not present.

The mechanics of this sign, as also of the second, will explain why it is practically impossible, and at least very highly improbable, that either of these signs should be duplicated by any other condition of the uterus. It is true that some degree of softening and compressibility of the lower uterine segment can and does occur in many other conditions, in fact it is found before each menstrual period, but the compressibility is always limited. It is further true that in some cases of pregnancy, due to complications, the signs may not be absolutely typical so that a negative finding here will not definitely rule out pregnancy. This, however, does not alter the fact that the presence of Hegar's first, second, or both signs is a positive sign of pregnancy.

Let us consider the mechanics of the production of these signs, taking up Hegar 1. It may at first seem that the general softening of the uterine substance in pregnancy is responsible for the compressibility found in the lower uterine segment. There is, however, more than that to be considered. Fig. 2, A, may represent the normal pregnant uterus. Now, if we compress the lower segment, not only are the soft walls compressed, but the amniotic sac is pushed up,

bulging the upper uterine body as shown in Fig. 2, *B*. This can happen only because the following factors are present: (1) Thinning out of the uterine walls; (2) softening of the uterine walls; (3) an encapsulated fluid content of the uterus. The last factor is the most important. The greatest compressibility is, therefore, pro-



Fig. 1.—Method of demonstrating Hegar's second sign of pregnancy. The uterine wall is shown solid black. The index finger of the right hand of the examiner is pushing up the vaginal wall. Between his two hands is the fold of the anterior uterine wall. The hand of an assistant is preventing the uterus from escaping backwards.

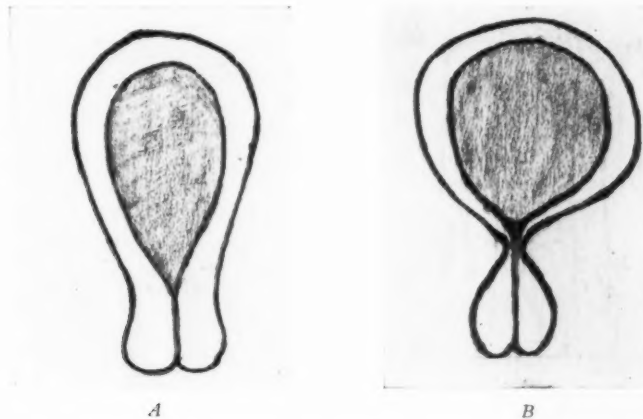


Fig. 2.—The shaded portions represent the amniotic cavity. In *A* is the pregnant uterus in its normal state. In *B* the lower uterine segment is compressed. Note the shortening of the long diameter of the amniotic sac and the bulging of the corpus uteri above the point of pressure.

duced not by compression of the uterine walls, but by the moving out of the way of the amniotic fluid. That is, the uterine wall is movable to some extent on its fluid content and, furthermore, the soft, enlarged, musculo-fibrous bundles

which run more parallel in a pregnant than in a nonpregnant uterus, move upon one another.

If we have a hyperemic enlarged uterus the walls are thicker, not thinner, as in pregnancy and we can indent the wall but never bring out examining fingers practically into direct apposition.

Again, a cystic uterus, even granted we have softening and thinning of the walls instead of a fibrosis as is usually the case, will not give a typical Hegar first sign. In the presence of a cyst, the size is determined by the pressure of the fluid in it; therefore, its walls are more or less tense and it cannot be compressed to the extent of a pregnant uterus, because the uterine walls themselves form the cyst wall and the fluid has no place to escape. If, on the other hand, the fluid contents were not under much pressure, then the uterine walls would immediately contract down upon the fluid and so become thicker and less compressible or, if the walls were very thin and had lost their contractility, the uterus would sag, in which case pregnancy would hardly be simulated.

The important factor in the mechanical production of this sign of pregnancy is that the uterine wall moves on and over the wall of the cyst within.

The mechanism of Hegar's second sign is absolutely identical with the mechanism of the first, except that it is still more evident that we require as a prime requisite an encapsulated fluid content over which the softened uterine wall can move.

Of course, it is possible to conceive conditions, other than pregnancy, which would mechanically satisfy all the prerequisites on which both of Hegar's signs depend, and insofar it is theoretically correct to call both of the signs described only probable signs of pregnancy.

Practically, however, such conditions must be so extremely rare that I believe we can safely agree with Hegar and his pupils in stating that the presence of these two signs in their typical form spell pregnancy and nothing else.

616 MADISON AVE.

Book Reviews

A Text Book of Gynecological Surgery.—By COMYNS BERKELEY, M.A., M.C., M.D. Cantab., F.R.C.P. (Lond.), M.R.C.S. (Eng.), Gynecological and Obstetric Surgeon to the Middlesex Hosp., Senior Surgeon to the City of London Lying-in Hospital, Surgeon to In-patients at the Chelsea Hospital for Women, Consulting Gynecologist to the Eltham Hospital, Examiner in Diseases of Women and Midwifery to the Universities of Oxford, Cambridge and London; sometime Examiner to the University of Leeds, the Conjoint Board of England and the Society of Apothecaries, London, and Victor Bonney, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.), M.R.C.P. (Lond.), Assistant Gynecological and Obstetric Surgeon to the Middlesex Hospital, Surgeon to In-patients at the Chelsea Hospital for Women, Gynecologist to the Putney Hospital, the Miller Hospital and the Hospital for Epilepsy and Nervous Diseases, Maida Vale; Examiner in Diseases of Women and Midwifery to the Conjoint Board of England; formerly Hunterian Professor, Royal College of Surgeons of England, and Emden Research Scholar, Cancer Investigation Laboratories, Middlesex Hospital. Second edition, with 489 figures in the text and 16 color plates. New York, Paul B. Hoeber, 1920.

The present volume is the second, enlarged and revised edition of Berkeley and Bonney's now well-known and valuable book on gynecological surgery. Its publication was intended for the Autumn of 1914, but the advent of the great war compelled its postponement. Advantage was therefore taken by the authors of the advances in surgery of the female genitals to make many alterations in the text and many additions also. The treatment of shock with especial reference to blood transfusion based upon the war experience has been a notable addition to the book. Another chapter upon the mechanism of the supports of the genital canal has been added so as to lay the foundation for the particular type operation to be performed for the relief of displacements.

The three chapters upon the complications of pregnancy, labor and the puerperium by ovarian tumors, uterine myomata and cancer of the cervix are especially illuminating in view of the great personal experience of the authors. We note with considerable satisfaction the new chapter on abdomino-perineal excision of the rectum for carcinoma. The very valuable chapters on postoperative treatment, postoperative complications and on immediate and remote results of gynecological operations have been considerably enlarged and brought up to date.

The book is perhaps the most complete text book on the subject of gynecological surgery written in English. It satisfies the requirements of the experienced gynecological surgeon who may desire to compare his own methods and results with those of two distinguished and mature surgeons. It also covers the whole field of technique, operative indications, dangers and risks, so completely as to be of the

most helpful service to those who intend to specialize in this department of surgery. The illustrations are very abundant and while they are only line drawings for the most part, they are especially clear and instructive.

Gynäkologisches Vademekum. Für Studierende und Ärzte.—By PROF. DR. A. DÜHRSEN, Berlin, with 138 illustrations in text and 11 plates, 13th and 14th revised edition. Berlin, Verlag Von S. Karger, 1920.

The present small handy volume of gynecology combines the 13th and 14th editions. Few changes are noted. Brief mention is made of some of the advances in gynecology. Except for a rapid review of the subject by a student preparatory to taking his examinations, the book cannot be regarded as having any other value.

Geburtshilfliches Vademekum.—"A Handy Volume of Obstetrics." By the above author.

This little volume is far better than its companion. Progress in obstetrics does not proceed in leaps and bounds. The advances in the past years in this field of medicine have not been epoch-making. Dührssen's little book gives a good survey of the subject even if he emphasizes his own contributions to obstetrics perhaps unduly. This is pardonable in the author of the Vaginal Cesarean which was devised 25 years ago and in commemoration of which he has incorporated in this edition a complete description of the operation with improved and increased illustrations.

Book Notices

Acknowledgment is made of the receipt of the following book, a selected review of which will appear in an early number.

THE GLANDS REGULATING PERSONALITY. By DR. LOUIS BERMAN. New York, 1921, The Macmillan Company.

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The American Journal of Obstetrics and Gynecology

GEORGE W. KOSMAK, M.D., Editor

HUGO EHRENFEST, M.D., Associate Editor

Published by THE C. V. MOSBY COMPANY, 508 North Grand Ave., St. Louis, Mo.

Published Monthly. Subscriptions may begin at any time.

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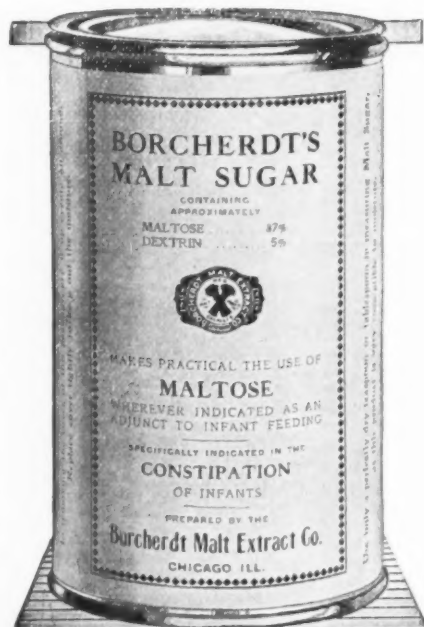
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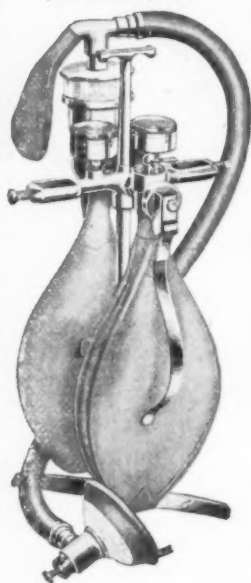
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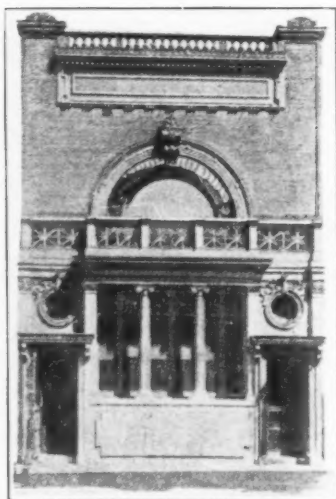
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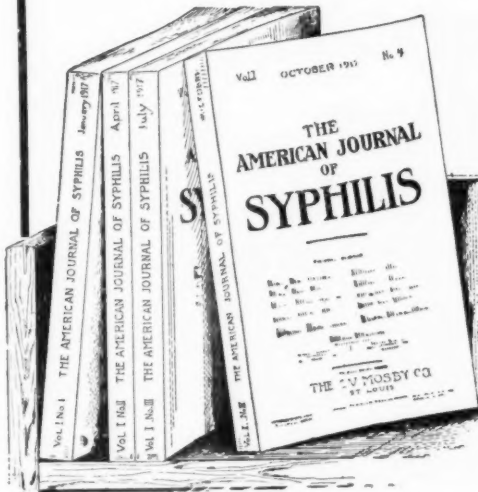
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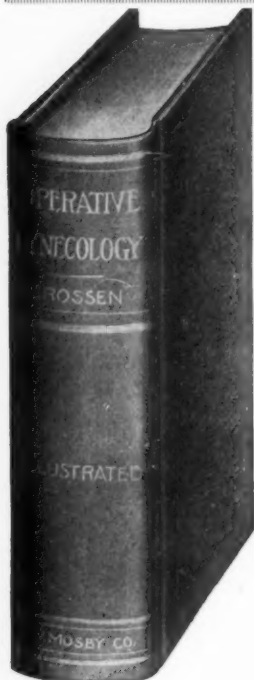
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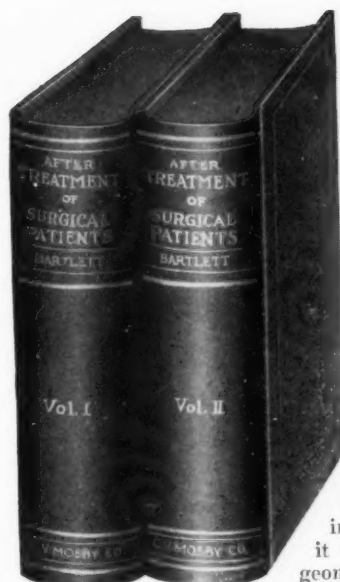
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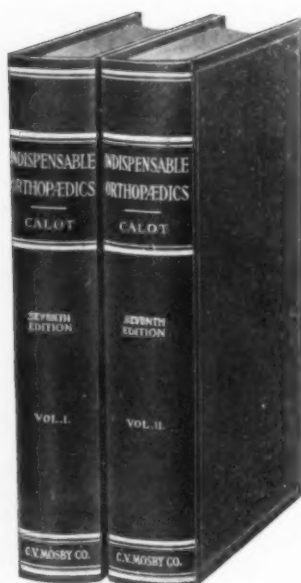
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